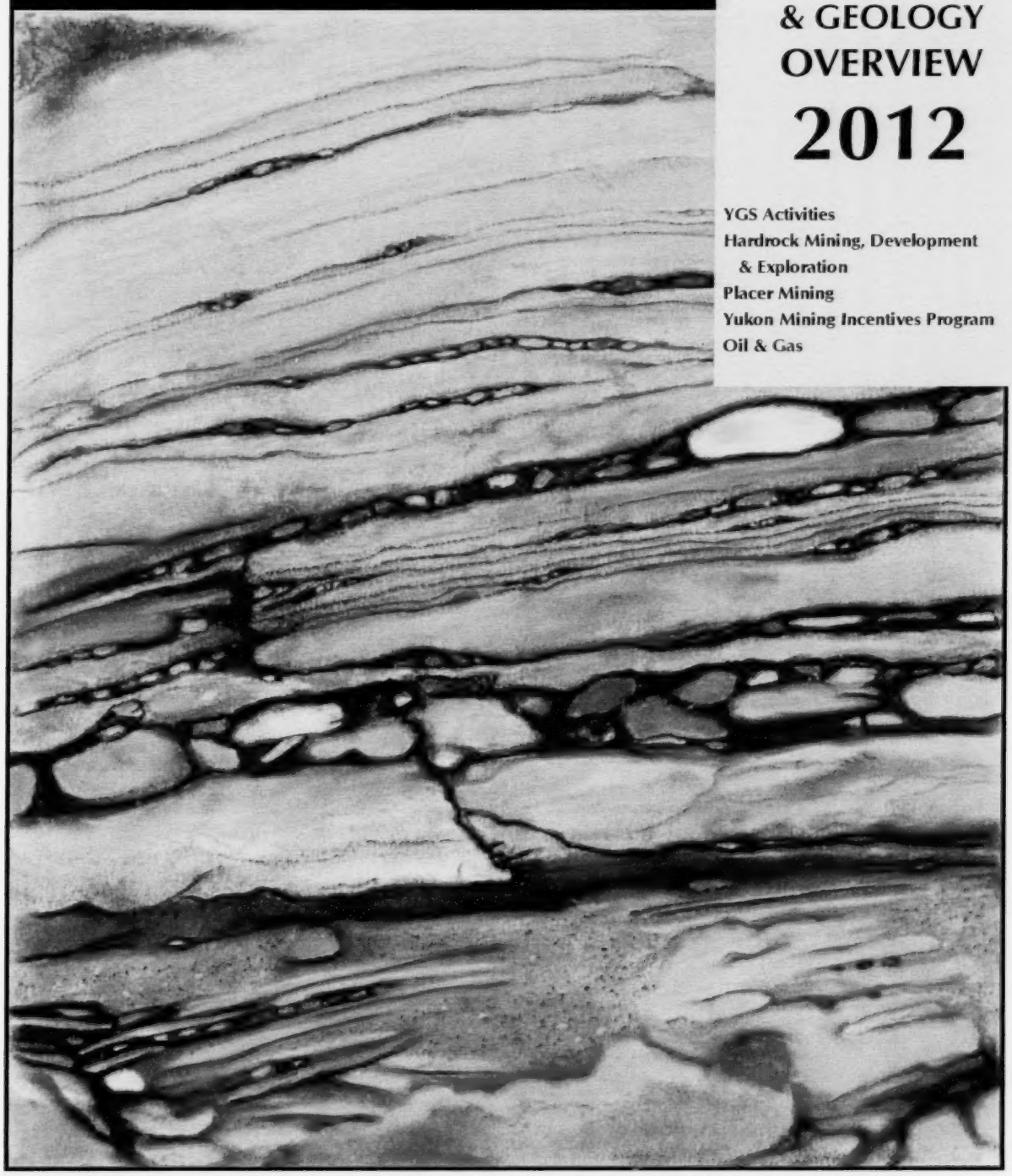
Energy, Mines and Resources • *Yukon Geological Survey*

YUKON
EXPLORATION & GEOLOGY OVERVIEW
2012

YGS Activities
Hardrock Mining, Development & Exploration
Placer Mining
Yukon Mining Incentives Program
Oil & Gas



CELEBRATING 20 YEARS
1992-2012
YUKON GEOLOGICAL SURVEY

Yukon
Energy, Mines and Resources

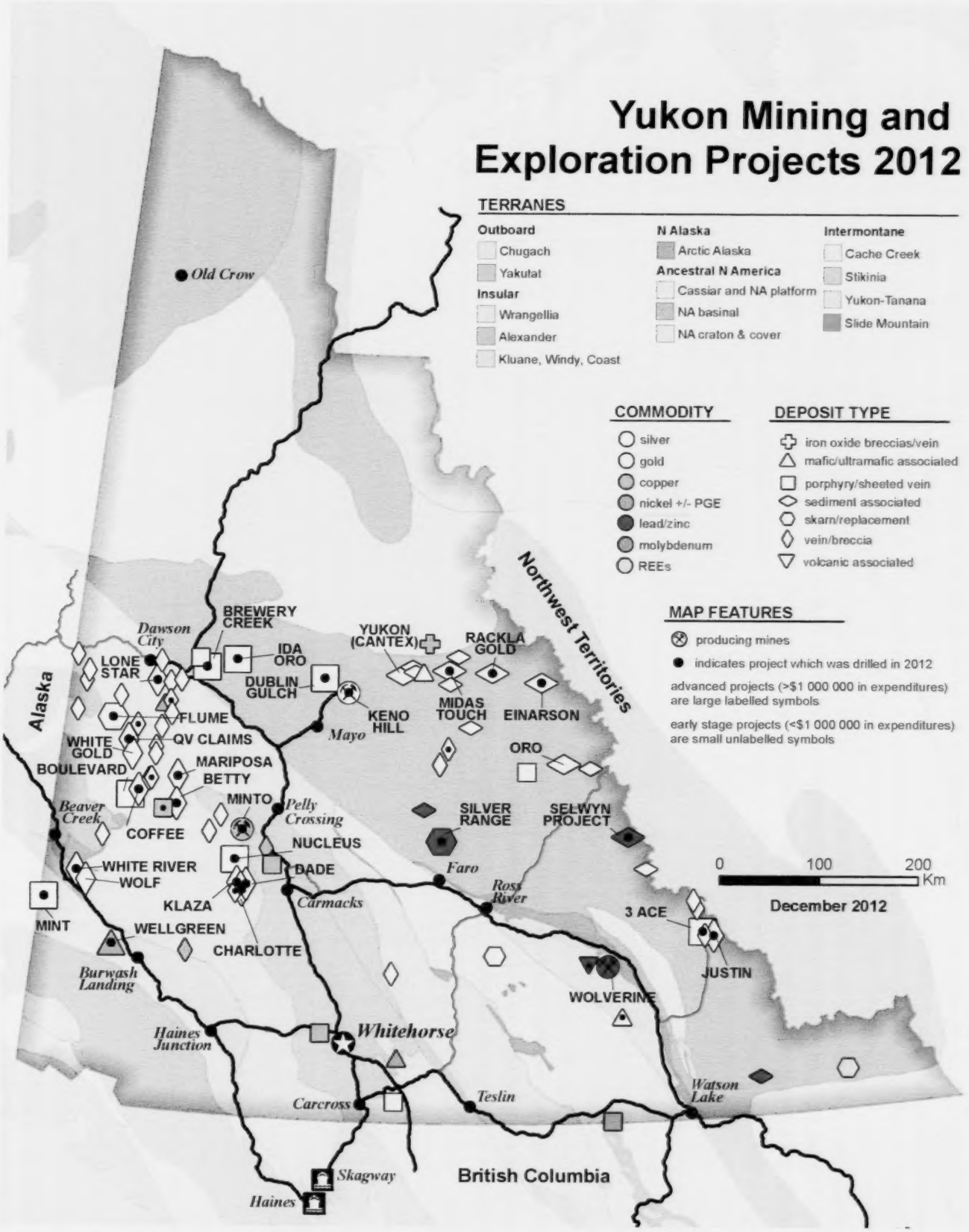


Figure 1. *Yukon exploration projects, 2012. Advanced projects (>$1 million) have large labelled symbols, and early stage projects (<$1 million) have small unlabelled symbols. Dot in centre of symbol indicates drilling constituted part of the exploration activities.*

YUKON
EXPLORATION & GEOLOGY OVERVIEW
2012

Edited by
K.E. MacFarlane and M.G. Nordling

Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

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Front cover photograph: Copy of an original chalk pastel drawing by Joyce Majiski. The image was inspired by the geography and geology of the Firth River area, northwest Yukon. The piece was selected to commemorate the 20th anniversary of the Yukon Geological Survey.

PREFACE

Yukon Exploration and Geology (YEG) and the Yukon Exploration and Geology Overview continue to be the main publications of the Yukon Geological Survey (Energy, Mines and Resources, Government of Yukon). Individual YEG papers, with colour images, are available in digital format only and can be downloaded from our website. The YEG Overview is available in print and digital formats.

YEG 2012 contains up-to-date information on mining and mineral exploration activity, studies by industry, and results of recent geological field studies. Information in this volume comes from prospectors, exploration and government geologists, mining companies and students who are willing to contribute to public geoscience for the benefit of the scientific community, general public, and mineral and petroleum industries of Yukon. Their efforts are appreciated.

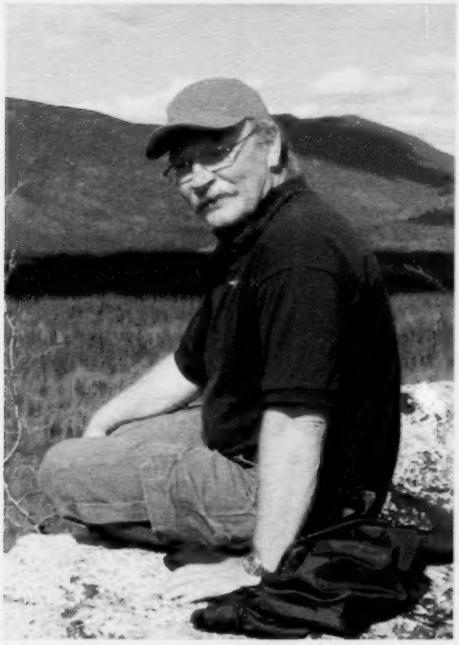
I have to thank my YEG co-editor Monica Nordling. She offered assistance on two levels, editing and comic relief. Hopefully she does not run in fear after discovering she shares my warped sense of humour. As always, appreciation is extended to Yukon Geological Survey staff who take the time to edit earlier versions of manuscripts; this year I thank Carolyn Relf, Lee Pigage, Maurice Colpron, Steve Israel, Tiffani Fraser, and Don Murphy.

Sherry Tyrner of the Queen's Printer ensured that the printing process went smoothly.

We welcome any input or suggestions that you may have to improve future YEG publications. Please contact me at (867) 667-8519, or by e-mail at karen.macfarlane@gov.yk.ca.

Karen MacFarlane

IN MEMORIAM



JOHN DAVID WITHAM

On December 14, 2011 the Yukon lost a mining industry legend and friend, Mr. John Witham.

John David Witham was born in Mohall, North Dakota on March 6, 1954. When he was 12 years of age, John and his parents Burt and Louise moved from North Dakota to the wilds of Fort McMurray Alberta, relocating a few years later to Smithers, B.C.

One of John's first real passions in life was flying, and soon after graduating from high school in 1972, he obtained his commercial helicopter licence.

In the early 1970s, at the height of the mineral exploration boom, John moved to Ross River where he met and married Cindy McClymont. Cindy and John raised two children in Ross River, Zackary and Kristen.

Over the course of the next couple of decades, John worked primarily in the Yukon's mining industry. As a testament to his love of flying and dedication to the industry, he proceeded to log almost 30,000 hours of fixed wing and helicopter time.

In 1990, John met Bernadette Etzel, and in 1994 they were married. John and Bernie were loving parents of Vashti and Rafe, and proud grandparents of grandson Drake and granddaughters Deliehla and Danisha.

Drake, who was the apple of grandpa John's eye was born during John's last term as President of the Yukon Chamber of Mines, during the 2006 Yukon GeoScience Forum.

In spite of the many hours he spent flying, John always made time to share with Bernie, the kids, and grandkids some of his many other passions, which included hockey and gardening. When it came to hockey, I am told he had two things in common with Gordie Howe, they both wore skates and they both knew what elbows were really for.

John was also a very accomplished musician, who was always ready and willing to bring life to a party. Whenever he was around, there was usually a guitar, a piano, a harmonica or on occasion even a set of drums somewhere close by. If there wasn't, John would find one or the other and the party was on. Rest assured, if there was music happening, John could be counted on to enthusiastically add one or more of his very accomplished vocal renditions. If he couldn't find a musical instrument nearby, John could always be counted on to entertain with one of his many fairly corny jokes!

Another well-known fact about John is that he was a master story teller, with an uncanny ability to make a story just a bit more interesting and intriguing every time he told it, which was usually quite often.

John's first venture into the private airline industry came as owner/operator of Witham Air Limited. Following that, he spent many years with Trans North Helicopters functioning as Base Pilot in Ross River and Smithers, B.C and subsequently Operations Manager and Marketing Manager in Whitehorse. John was the first CEO of the Kaska Minerals Corporation, he spent several terms as President of the Yukon Chamber of Mines and was also Secretary/Director of the Yukon Chamber

of Commerce. It was as President of the Yukon Chamber of Mines, where along with many other accomplishments, he was instrumental in establishing the Yukon Mine Training Association.

John's list of friends and acquaintances was far reaching, and to a person, they all remember him as a passionate supporter of Yukon's exploration and mining industry. Members of the chamber also remember John as a president that insisted on playing a role in the public consultation process, a trait that he insisted on in private life as well. While John was never shy about providing his own insightful, and always well researched, input on any topic, he was just as eager to consider the perspective of others.

Long-time friend and business associate Rob McIntyre described John as "a class act" and a man of great integrity. He recalls his most enduring memory of John being that while he was plying his profession as a superb helicopter pilot, he always had his ears open to the in-cabin conversations amongst his geologist and prospector clients. While flying, he would often ask meaningful questions and make helpful observations about geological formations, pointing out anomalies in vegetation and weathering patterns. John knew about landscapes, and was well aware of the changes that had taken place in those landscapes from year to year. But, whatever *'gems'* of knowledge John picked up from those many years of in-flight cabin conversations, one could be safe in the knowledge that he would never divulge secrets from company to company, or use that information for personal gain.

On May 8, 2012, the Hon. Brad Cathers, Yukon's Minister of Energy Mines and Resources paid tribute to John in the Yukon Legislative Assembly and quoted from one of John's many Letters to the Editor. "There are many of hundreds of families in the Yukon that depend upon mineral exploration in order to make their mortgage payments, feed themselves, and ensure a proper education and a bright future for their children."

Minister Cathers went on to say "John's letters were always well-written, well-reasoned and often very insightful. In the midst of sometimes very emotional debates, many of us appreciated his thoughtful and always fact-based contributions on our behalf."

In John's honour later that day, Minister Cathers tabled the following Motion in the House;

"Mr. Speaker I rise to give notice of the following motion:

THAT this House urges the Yukon government to continue to respect the fact that there are many hundreds of families in the Yukon that depend upon mineral exploration in order to make their mortgage payments, feed themselves, and ensure a proper education and a bright future for their children; and:

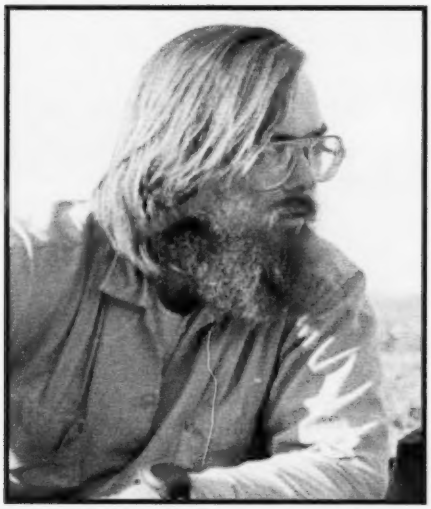
THAT this House urges the Yukon government to continue to support responsible mineral exploration and responsible mining as key elements of a strong diversified Yukon economy."

At the time of his passing, John was Whitehorse Base Manager for Vancouver Island based Peak Helicopters.

Dave Austin

A Long Time Friend

Whitehorse



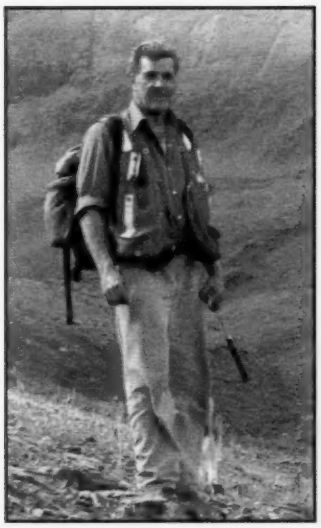
JIM MCFAULL

On April 14, 2012, the Yukon exploration community lost, well known geologist and prospector, Jim McFaull. Born in Regina in 1952, Jim was raised on the road with his family throughout Saskatchewan, Sault St. Marie, Winnipeg and Vancouver. His love of adventure and wild places led him into geology at the University of British Columbia, and he never looked back.

He began working with United Keno Hill Mines in 1970. During his time with UKHM, he was a key player on the mine site exploration team. He helped block out millions of ounces of silver in overlooked resources to supplement production from the Bellkeno, Silver King and Husky underground mines. He was happiest when digging into the archives in the "vault", looking for overlooked or missed ore shoots. Jim stayed with Keno through thick and thin until the final shutdown in 1990, after which, he began working as an independent, consulting geologist and prospector. He went on to stake and explore ground in the Mayo and Dawson Mining Districts, with a particular passion searching for the source of the Klondike's rich placer gold deposits.

Jim was a valiant defender of the mining industry, serving as director, vice president, and president of the Yukon Chamber of Mines and the Yukon Prospectors Association. He was a forceful and effective spokesman for the industry during the dark years of the 1990's.

Jim had a wealth of stories and a truly magnetic personality. He loved the blues and fine Irish whiskey. A lifelong bachelor, he was a generous surrogate uncle to kids in a number of Yukon mining families. He was a true Yukoner in the tradition of the sourdoughs - always on the trail of the next discovery.



ROBERT WILLIAM STROSHEIN

1949-2012

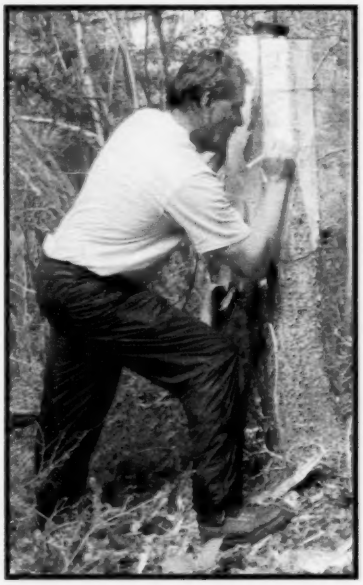
It is with great sadness that we honour the passing of Robert W. Stroshein, a well known and respected geological engineer who spent most of his career in Yukon.

Robert was raised in Wadena, Saskatchewan, the third child in a farming family of six boys. In high school he joined the Wadena army cadets, eventually becoming commander of his cadet corps in grade 12. For three summers following high school, he was a lieutenant working as an instructor at the cadet summer camp held in Vernon, BC.

He graduated from U. of Saskatchewan in 1973 with a BSc in geological engineering. Hiring on with Hudson Bay Exploration and Development (HBED) in Manitoba right after school, he came to Yukon in 1974, and stayed with HBED until 1986. As the project geologist for the last HBED prospecting program using pack horses in Yukon, he witnessed the passing of an era.

Robert's wide field of experience included exploration, feasibility studies, mine development and mining, where he contributed both from a managerial and from a technical perspective. His most significant contributions in Yukon exploration and mining were made in the Whitehorse Copper Belt, in the Mount Nansen and MacPass districts (including the Mount Nansen Mine and the Tom deposit), as well as at Grew Creek, Ketza River and in Yukon Tanana terrane.

He worked for a number of companies in various capacities, as well as for the Yukon government. Since 2003, he worked mostly as a successful independent consultant and contractor through his consulting firm, Protore Geological Services. He served as a director and vice-president of the Yukon Chamber of Mines, and was also a member the Association of Professional Engineers of Yukon Territory, CIMM and SEG. He also served on a number of boards of directors of junior mining companies.



A family man, Robert was married to Breta Chippitt until her death in 2002. Her children became his. With Susan Rousseau, his present spouse, his family grew again. She and her children will miss the partner, father, and grandfather that he so lovingly became.

Robert enjoyed life in the moment and found contentment in the simple pleasures in life. His beautiful Marsh Lake home offered the perfect canvas for good meals with family and friends, walks with the dog, watching the seasons change with a cup of good coffee in hand, listening to his favourite music.

He will be remembered as a very kind man, whose quiet self-confidence, skill, humour, easy-going nature and love of life touched those fortunate enough to be around him. Many good memories and funny stories will hopefully soften the loss of one so dear to many.

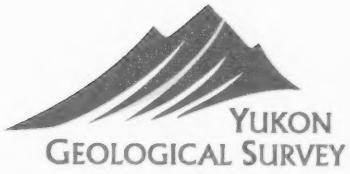


TABLE OF CONTENTS

Summary of Yukon Geological Survey's 2012-2013 Activities
C. Relf 11

Yukon Hardrock Mining, Development and Exploration Overview 2012
L. Pigage, P.J. Sack, D. Torgerson, L.L. Lewis, and R. Deklerk 27

Yukon Placer Mining Overview 2012
J. Bond 67

Yukon Mining Incentives Program: 2012-13 update
D. Torgerson 71

Yukon Oil and Gas Overview 2012
B. Adilman 77

Robert E. Leckie Awards for Outstanding Reclamation Practices
J. St. Amand 82

2012 List of Publications and Maps
..... 87

Yukon Geological Survey staff: (front row, left to right) Sarah Laxton, Johann Slam, Lara Lewis, Olwyn Bruce, Maurice Colpron, Jeff Bond, Tiffani Fraser, and Kristen Kennedy; (back row, left to right) Karen MacFarlane, Carolyn Relf, Bailey Staffen, Laurie Fahr, Aubrey Sicotte, David Moynihan, Steve Israel, Charlie Roots and Robert Deklerk.
Missing from photo: Sue Roy, Derek Torgerson, Lee Pigage, Patrick Sack, Panya Lipovsky, and Don Murphy.

Summary of Yukon Geological Survey 2012-2013 Activities

Carolyn Relf[1]
Director, Yukon Geological Survey

Relf, C., 2013. Summary of Yukon Geological Survey 2012-2013 Activities. *In*: Yukon Exploration and Geology Overview 2012, K.E. MacFarlane and M.G. Nordling (eds.), Yukon Geological Survey, p. 11-25.

INTRODUCTION

This year marks twenty years since Yukon government first hired permanent geologists to undertake regional mapping in the territory under the federal-territorial Economic Development Agreement. In the intervening twenty years, federal devolution of natural resource management responsibilities has resulted in the growth of the Yukon Geological Survey (YGS) and an expansion of its mandate to include surficial geology, geo-hazards, and petroleum studies, as well as bedrock mapping and mineral resource inventories.

This summer YGS carried out one major bedrock mapping project, initiated two new field projects, and undertook a number of thematic studies including aggregate inventories, targeted mineral deposit research, permafrost monitoring, and hazards assessments. Seven university research projects were supported, and two desktop studies on the territory's oil and gas potential were completed. New publications this year will include a bedrock geology compilation of the Dawson – Ruby – Kluane ranges, where YGS recently completed several seasons' mapping as a contribution to the Geological Survey of Canada's Geo-mapping for Energy and Minerals (GEM) program. The new H.S. Bostock Core Library's lapidary facilities saw significant client use, and substantial headway was made on inventorying YGS' drill core collection.

This report provides an overview of YGS' 2012-13 activities; interim reports on some of these projects are presented in this year's Yukon Exploration and Geology (YEG) volume; results of other projects will be released separately.

YUKON GEOLOGICAL SURVEY PROGRAM FUNDING AND OVERSIGHT

The mandate of the Yukon Geological Survey is to provide geoscience and related technical information to enable the stewardship and sustainable development of Yukon's energy, mineral and land resources. The Survey is a branch of Yukon government's Department of Energy, Mines and Resources (EMR).

YGS develops its research priorities and annual work plans based on input from a number of sources. Every five years, the survey holds a planning workshop to identify geoscience knowledge gaps and emerging issues and opportunities over the medium term (~5-10 years). Corporate needs defined by EMR, such as land use planning initiatives, infrastructure plans, and information to support the department's regulatory functions also influence YGS' priorities. Two Technical Liaison Committees meet annually with YGS to provide advice on their information needs and emerging exploration trends; one committee represents the minerals sector, and the other represents oil and gas interests. YGS also consults with communities and First Nations to seek input on its activities, and receives feedback from the public via its outreach activities.

[1] *carolyn.relf@gov.yk.ca*

YGS OPERATING BUDGET

Yukon Geological Survey's operating budget in 2012-13 totaled $2655K, of which $1722K was derived from the Yukon government ($1122K operational funding and $600K for the Yukon Mining Incentives Program). The remaining budget ($933K) was a grant from the Canadian Northern Economic Development Agency (CanNor) under their Strategic Investments in Northern Economic Development program (SINED).

YUKON MINING INCENTIVES PROGRAM

A total of $570K was invested in exploration projects under the Yukon Mining Incentive Program (YMIP) this year. The remaining $30K was used for program administration costs, including property visits, business travel, and training. As in previous years, grant recipients were selected based on a competitive, merit-based process. The program funds up to 100% of eligible costs for Grassroots projects to a maximum of $15000; Focused Regional projects can receive up to $15000 to cover 75% of total eligible costs; and Target Evaluation projects can receive up to $25000 for 50% of eligible costs. A total of 29 projects were funded this year; project locations are shown in Figure 1 and details are presented in Table 1.

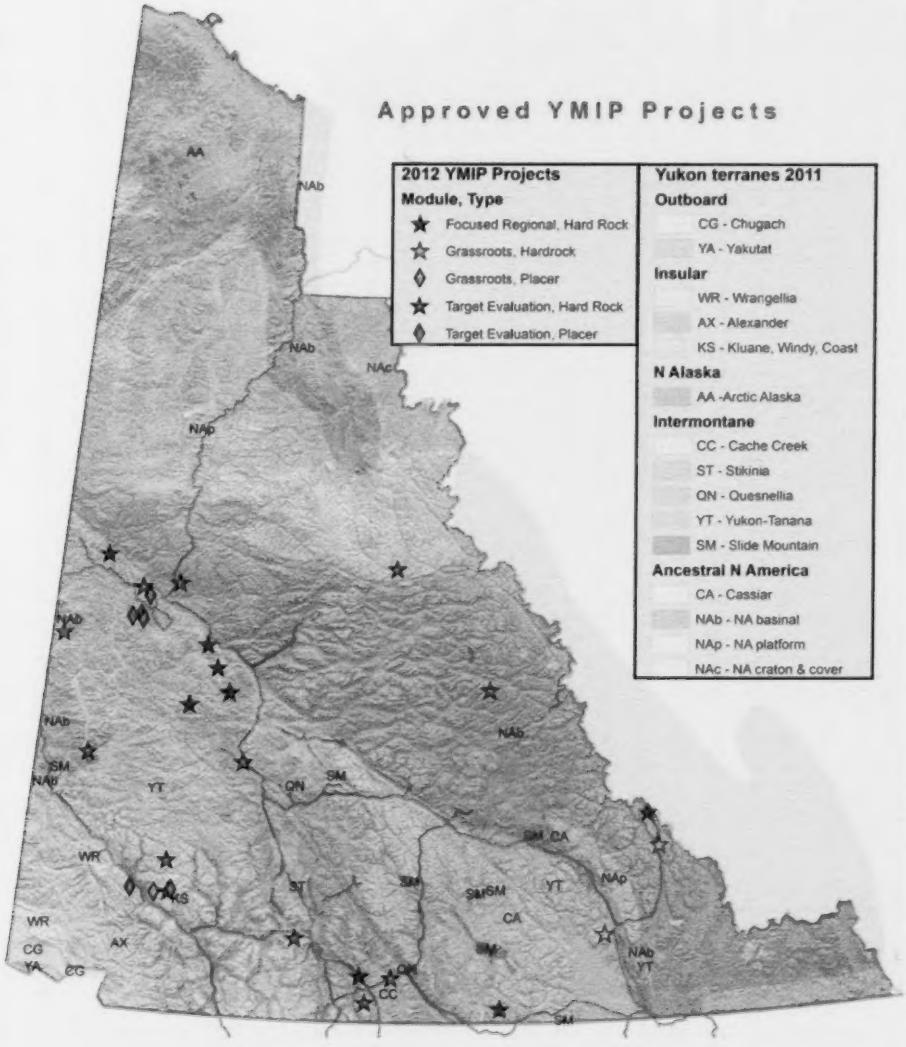


Figure 1. *Map showing locations and types of exploration projects funded under Yukon Mining Incentives Program (YMIP) in 2012-13.*

Table 1. List of 2012-13 YMIP grant recipients.

2012 YMIP SUCCESSFUL APPLICANTS

Applicant	YMIP #	Project Module	Project Type
Alex Black	12-032	Grassroots	Hard Rock
Everett Van Krichbaum	12-044	Grassroots	Hard Rock
Dick McKenna	12-003	Grassroots	Placer
Gordon Richards	12-016	Focused Regional	Hard Rock
Gordon Richards	12-017	Focused Regional	Hard Rock
Jeff Mieras	12-019	Focused Regional	Hard Rock
Jeff Mieras	12-020	Focused Regional	Hard Rock
39627 Yukon Inc.	12-039	Focused Regional	Hard Rock
Bernie Kreft	12-048	Focused Regional	Hard Rock
Gary Lee	12-049	Focused Regional	Hard Rock
Kaminak Gold Corp.	12-063	Focused Regional	Hard Rock
Ivan Elash	12-002	Target Evaluation	Hard Rock
Charlie Long	12-006	Target Evaluation	Hard Rock
All-In Exploration Services	12-007	Target Evaluation	Hard Rock
Golden Predator Canada Corp.	12-021	Target Evaluation	Hard Rock
Gorilla Resources	12-024	Target Evaluation	Hard Rock
Kestrel Gold Inc.	12-027	Target Evaluation	Hard Rock
Metals Creek Resources	12-029	Target Evaluation	Hard Rock
Sourdough Resources	12-033	Target Evaluation	Hard Rock
Northern Tiger Resources	12-066	Target Evaluation	Hard Rock
Shawn Ryan	12-067	Target Evaluation	Hard Rock
Shawn Ryan	12-069	Target Evaluation	Hard Rock
Fox Exploration Ltd.	12-070	Target Evaluation	Hard Rock
Diamond Tooth Resources	12-071	Target Evaluation	Hard Rock
Redtail Metals Corp.	12-072	Target Evaluation	Hard Rock
Monster Mining Corp.	12-074	Target Evaluation	Hard Rock
4763 NWT Ltd.	12-023	Target Evaluation	Placer
La Tierra Resources Ltd.	12-042	Target Evaluation	Placer
Bernie Kreft	12-045	Target Evaluation	Placer
Anthony Malcolm	12-050	Target Evaluation	Placer
Ralph Keefe	12-060	Target Evaluation	Placer
Eric Stretch	12-065	Target Evaluation	Placer
Malcolm Journeay	12-073	Target Evaluation	Placer

LAND USE PLANNING

YGS continued to provide information on mineral and petroleum potential to support implementation of the North Yukon Land Use Plan, ongoing discussions on the Peel Land Use Planning process, and planning work by the Dawson Land Use Planning Committee. Updated maps of bedrock mineral potential (Kilby, in press) and placer gold potential (Bond, 2012) were completed this year for the Dawson planning area. The placer potential map was generated by integrating bedrock mineral potential values with data on exploration and production histories from drainages in the Klondike.

SINED FUNDING

This is the third year of a four-year program under which Canada's Northern Economic Development Agency (CanNor) has provided geoscience funding to YGS. The Strategic Investments in Northern Economic Development (SINED) Program supports projects that are designed to stimulate economic development in Yukon. Areas of geoscience investment include regional geophysical and geochemical data collection, placer studies, community mapping, an aggregate inventory, data management and web-based information services. Funding allocations and brief project descriptions are presented in Table 2.

In November 2011, efforts were made to acquire feedback on the impacts and value of the SINED-funded projects completed to date. Performance measurement is continuing this year, and includes ongoing tracking of feedback on selected projects from the first two years of the program. Readers are invited to fill out questionnaires on these specific projects (www.geology.gov.yk.ca/recent.html), and are welcome to provide comments on any aspects of YGS' activities.

YUKON GEOLOGICAL SURVEY ORGANIZATIONAL OVERVIEW

STAFF CHANGES

After over thirty years of government service, YGS' Placer Geologist Bill Lebarge formally retired in August 2012. His departure leaves a significant gap in YGS' corporate knowledge of Yukon's many placer mines. Tracking of placer production and liaison with placer miners will be carried out in future by Jeff Bond, with assistance by Kristen Kennedy, who was hired in August on a permanent basis as a Surficial Geologist. In addition to Kristen, YGS hired two new geologists for its Regional Bedrock Geology unit this year. David Moynihan joined the survey in June and Rosie Cobbett was hired in November. In addition to new hires, two staff celebrated the arrival of new babies in 2012: Aubrey Sicotte welcomed a baby girl in July, and Panya Lipovsky had a baby boy in August. Panya will be on maternity leave until August 2013.

I would like to take this opportunity to thank Bill for his hard work and commitment to YGS and Yukon's placer community; he will be missed. I would also like to welcome Kristen, David and Rosie to YGS, and congratulate Panya and Aubrey on their new family members.

Table 2. *Summary of 2012-13 SINED-funded projects.*

Investment Area	SINED Funds	Leveraged Funds	Brief Description
Geophysics	$391K	$20K[1]	$300-350K for acquisition of new data (type of survey and area tbd); remainder for funds for data inversion/ integration
Geochem	$75K	$15K[1]	Apatite fission track analyses of Rackla samples
	$25K	$5K[1]	Value-added analyses of stream sediment geochem data
	Total $100K	Total $20K	
Database/Web	$50K	$20K[1]	Ongoing database and web development
Info Management	$150K	$30K[1]	Continued scanning of industry documents
Surficial Geology	$50K	$80K[1]	Community mapping and permafrost studies (Burwash – Destruction Bay); estimate includes salary
	$100K	$0	Whitehorse aggregate study (Golder Associates)
	Total $150K	Total $80K	
Targeted Studies	$22.4K	$29.1K[2]	White Channel Gravels (Leeds University)
	$12K Univ.	$15 K[2]	Stream sediment and soil geochem (University of Alaska)
	$30.4K	$20K[1]	Pyrite chemistry study, Selwyn basin (Sack)
	$8.8K ROM	$45.5 K[3]	North Yukon Phosphate minerals (University of Toronto)
	$9K	$1K[2]	Placer gold fingerprinting (Juniata College)
	$1.4K	$0	Placer workshop
	Total $84K	Total: $111K	
Performance Measures	$8K	$5K[1]	Client survey on SINED program effectiveness
TOTAL	**$933K**	**$286K**	

Source of leveraged resources:
[1] $ from YGS
[2] $ from university partners
[3] $ from Royal Ontario Museum (ROM)

STAFF RELOCATIONS

In the spring of 2012, YGS staff moved out of their downtown Whitehorse office space on 2nd Avenue and into two new locations. The allocation of office space was based on functions, with bedrock mapping, basin studies, and outreach moving to the new H.S. Bostock Core Library, and surficial geology (mapping, placer studies, permafrost, *etc.*) taking over offices on the second floor of the Elijah Smith Building, one floor above YGS' Mineral and Technical Services units. Sarah Laxton, who runs the outreach program, is located at the core library, although her scientific activities comprise part of the Surficial Geology unit's work. Office locations and contact information for YGS staff can be found on the survey's website (http://www.geology.gov.yk.ca/staff.html).

ORGANIZATIONAL PLANNING

Last fiscal year, YGS contracted VI Geosciences to undertake a critical assessment of its oil and gas geology program. Staff from YGS, EMR's Oil and Gas Resources Branch, and representatives from the energy exploration sector were interviewed to identify opportunities for (and impediments to) petroleum development in Yukon, to compare YGS' research capacity to other jurisdictions with similar oil and gas potential, and to identify the key geoscience knowledge gaps that are barriers to attracting exploration to the territory. The report emphasized the need to retain a minimum of two geologists to work on petroleum-related projects, provide support to the Oil and Gas Branch, and to fulfill its regulatory obligations regarding the management of drill core and cuttings. YGS is currently in the process of recruiting a second petroleum project geologist, and hopes to have the position filled by spring 2013.

HIGHLIGHTS OF 2012 FIELD PROJECTS

RACKLA BELT PROJECT

The largest investment of resources in a single project this year was in regional bedrock mapping in the Rackla belt (Fig. 2). This belt hosts a variety of mineral occurrences, including recently-discovered Carlin-style gold which has fueled significant interest in the area (http://www.atacresources.com/s/NewsReleases.asp?; July 29, 2010). Mapping at 1:50 000 scale in the Rackla belt was initiated in 2010 (Chakungal and Bennett, 2011) in the Mount Mervyn map area (106C/4), and continued in 2011 by Maurice Colpron, who mapped the adjacent Mount Ferrell area (105C/3) to the east (Colpron, 2012a,b). These recent maps built on earlier mapping by Grant Abbott in Mount Westman (106D/1; Abbott, 1990) at the western end of the Rackla belt. Given the level of exploration interest in this area and the opportunity to leverage logistical support, a decision was made this year to accelerate mapping. Maurice Colpron, Steve Israel, David Moynihan, and Grant Abbott led the mapping effort, mapping two new 1:50 000 areas to the east of Mount Ferrell (106C/2 and 1) and integrating structures and stratigraphic units across a total of five map sheets (106C/1-4 and 106D/1). The new maps, which cover a strike length of 100 km from the Tiger and Marg deposits in the west to the new Carlin-type gold occurrences in the east, will be released early in 2013. A brief summary of the highlights of new mapping is presented here; an Open File report planned for release in 2013 will provide more details of the stratigraphic correlations and structural interpretations resulting from this project.

The Rackla belt is divided into three main structural panels separated by the Dawson thrust and Kathleen Lakes fault. These major structures generally bound major Neoproterozoic and Paleozoic facies domains as well (Fig. 3). The southern-most domain occupies the hanging wall of the Dawson thrust and consists of a southward-dipping (and younging) imbricated panel of mainly clastic sedimentary rocks of the Selwyn basin. Rocks in this domain range from Neoproterozoic (Yusezyu, Algae, and Narchilla formations of the Hyland Group) to Devonian-Mississippian (Earn Group), and locally Carboniferous to Triassic rocks. In the western part of the Rackla belt, strata of the Earn Group locally contain significant occurrences of volcanic rocks, including host rocks to Redtail Metals Corp.'s Marg deposit (Cu-Pb-Zn-Ag-Au VMS, 3.96 MT; http://www.copper-ridge.com/marg-project.html). In the same region, Earn Group strata are locally intruded by Triassic gabbro sills.

Rocks in the footwall (north) of the Dawson thrust are for the most part stratigraphically correlative with Selwyn basin rocks to the south, but of different facies. Neoproterozoic rocks are predominant in the eastern part of the belt near the headwaters of Nadaleen River, and host most of the Carlin-type gold mineralization discovered to date (Osiris, Isis, Conrad, and Pharoah zones; http://www.atacresources.com/s/NadaleenTrend.asp). They generally consist of fine-grained siliciclastic and carbonate rocks, including two prominent carbonate marker horizons and locally abundant debris flow deposits. The tentative identification of Ediacaran fossils in this

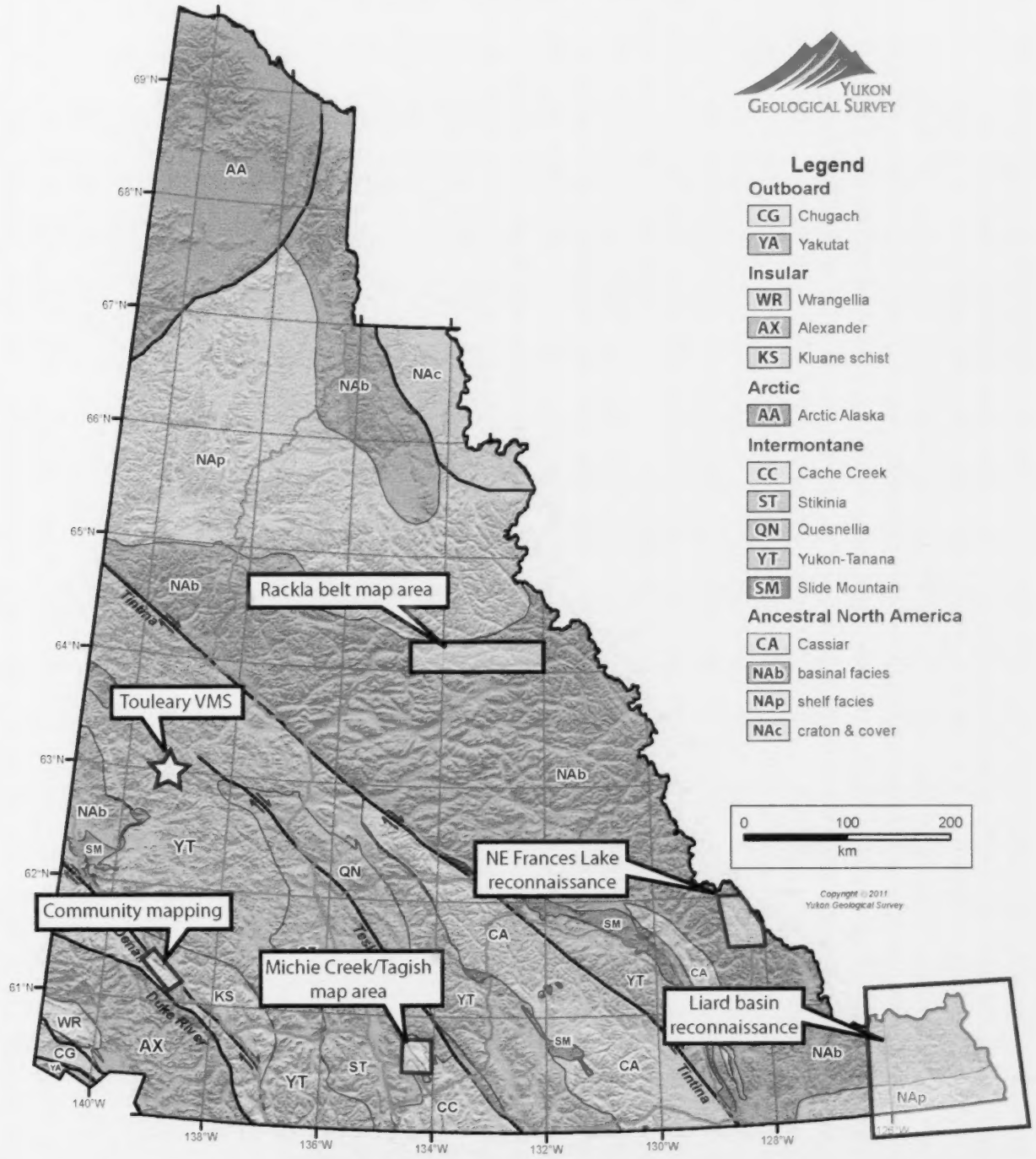


Figure 2. *Map showing locations of 2012-13 YGS field projects; see text for project descriptions and highlights.*

sequence suggests a correlation with the upper part of the Windermere Supergroup in the Mackenzie Mountains. The upper carbonate marker is overlain by maroon shale; this carbonate/shale sequence is identical to the upper part of the Hyland Group (Algae and Narchilla formations), thereby providing a stratigraphic tie across the Dawson thrust, and broad correlations between Windermere and Hyland strata.

Paleozoic rocks north of the Dawson thrust are generally divided into shelf and offshelf facies by the Kathleen Lakes fault (Fig. 3). Offshelf rocks between the Kathleen Lakes and Dawson faults consist predominantly of carbonate and shale of Cambrian to Permian age. This domain is characterized by abundant turbidites and debris flow deposits that represent slope facies along the northern edge of Selwyn basin. This offshelf belt of Paleozoic rocks terminates abruptly to the east across a series of north-striking faults that bound stratigraphic and structural panels in the vicinity of known Carlin-type mineralization. ATAC Resources' recently-discovered gold-rich Anubis zone (http://www.atacresources.com/s/NadaleenTrend.asp) occurs in Middle Devonian carbonate near the east end of the Paleozoic offshelf belt.

A domain of platform carbonate rocks of Cambrian to Devonian age occurs mainly to the north of the offshelf domain (see Figure 3). These rocks are exposed in the west-central map area (where they are truncated by the Kathleen Lakes fault to the north), in a window at the west end of the map area (where they are associated with basalt and host gold mineralization at ATAC Resources' Tiger deposit (http://www.atacresources.com/s/RauTrend.asp), and in the central part of the map area north of the Kathleen Lakes fault. The Paleozoic platform sequence north of Kathleen Lakes fault overlies the Neoproterozoic stratigraphy of the Nadaleen area in the east, and a domain of sedimentary rocks tentatively assigned to the Paleoproterozoic Wernecke Supergroup and Neoproterozoic Pinguicula Group to the west.

Significant changes in thickness of Neoproterozoic strata across north-striking faults in the Nadaleen area suggest that these structures are in part syn-sedimentary faults that were likely reactivated in Paleozoic and younger time. Similarly, changes in Neoproterozoic-Paleozoic stratigraphy across the Dawson and Kathleen Lakes faults indicate a protracted history for these structures, possibly beginning in the Neoproterozoic with reactivation during the Paleozoic and again during development of Mesozoic (Cretaceous?) fold-and-thrust structures along the length of the Rackla belt. The magnitude of displacement along both the Kathleen Lakes and Dawson faults appears to decrease eastward. Known occurrences of Carlin-type gold are concentrated in the area where east-west and north-south structural trends intersect (Fig. 3).

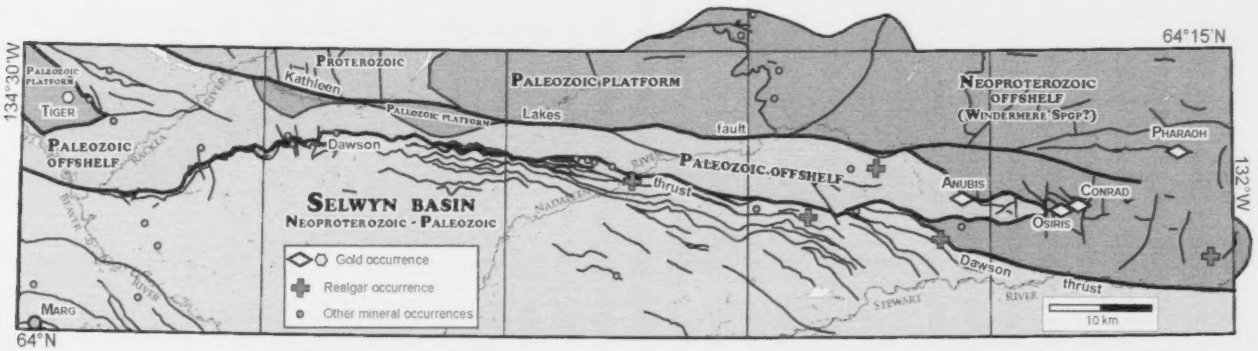


Figure 3. *Map showing geologic elements of Rackla belt. Map modified from unpublished 2012 Yukon Geoscience Forum poster by Colpron et al.*

FRANCES LAKE PROJECT

In August, David Moynihan spent a week in the northeastern part of the Frances Lake map area carrying out reconnaissance work in advance of new mapping being planned for this area in 2013 (Fig. 2). He documented fabrics and metamorphic assemblages in clastic metasedimentary rocks of the Upper Proterozoic to Lower Cambrian Vampire Formation. These rocks are intruded by Cretaceous granites of the Selwyn suite, and mineral assemblages associated with the thermal aureoles of the plutons imply relatively shallow emplacement depths of the plutons, on the order of ~10 km (Moynihan, YEG 2012).

LIARD BASIN PROJECT

Reconnaissance for a second new field project was undertaken in the Liard basin of southeastern Yukon (Fig. 2) this summer by Tiffani Fraser. The study, which is being jointly conducted with colleagues from Northwest Territories Geoscience Office and the British Columbia Ministry of Energy, Mines and Natural Gas (Oil and Gas Division), is focused on understanding the shale gas potential of the Devonian-Carboniferous Besa River Formation and equivalent strata. The Besa River Formation contains facies equivalents to gas-bearing shales in the adjacent Horn River basin (e.g., Horn River, Muskwa and Exshaw formations). In Yukon, the formation is under-explored, although the 2009 discovery of a major gas reservoir in lower Besa River Formation in BC's portion of Liard basin suggests the possibility of significant potential in Yukon. The reservoir, discovered by Apache Corporation, is estimated to contain 210 TCF net gas in place (48 TCF net sales) and has been characterized as the best unconventional gas reservoir in North America (http://www.apachecorp.com/Operations/Resource_rich_in_North_America/Liard_Basin/index.aspx).

Work to date has focused on measuring selected sections in each jurisdiction, collecting spectral gamma radiation data, and sampling the rocks for analyses (Rock Eval/TOC, vitrinite reflectance, lithogeochemistry, XRD mineralogy, and microfossil biostratigraphy). Preliminary project results are presented in YEG 2012 (Fraser *et al.*, 2013).

METALLOGENIC STUDIES

Patrick Sack initiated a study of the Touleary volcanogenic massive sulphide (VMS) occurrence in the Dawson area this year (Fig. 2). The occurrence, which represents the most significant VMS occurrence in Yukon southwest of Tintina fault, was initially reported to be hosted in rocks that are stratigraphic equivalents to the Devonian-Mississippian host rocks to Finlayson Lake district VMS deposits. However, recent mapping by Ryan *et al.* (Ryan, pers. comm.) suggests the possibility that the host rocks are correlative with Permian Klondike schists. To address this question, Sack has sampled several lithologies from the occurrence for U-Pb dating. An additional aspect of this study involved field analysis of samples using a portable X-Ray Fluorescence analyzer to assess the instrument's viability as an exploration tool for VMS deposits. The results of this case study are presented in YEG 2012 (Sack and Lewis, 2013).

A second mineral deposit study is underway and examining the chemical composition of diagenetic pyrite from carbonaceous shales in Selwyn basin, where numerous Carlin-type and orogenic gold occurrences have been documented. The study has three goals: to compare the trace element compositions of pyrites proximal and distal to mineralized rock; to assess the effect of oxidization on pyrite chemistry (by comparing pyrites collected from outcrop to those from diamond drill core); and to determine whether gold content in pyrite can be related to whole-rock gold values. If gold content in pyrite is depleted near gold occurrences relative to distal pyrites, it would suggest that diagenetic pyrite is a viable source of gold in these deposits. Given that laser-ablation ICP-MS element mapping is not a practical exploration tool, the link between pyrite composition and whole-rock gold content is being examined to determine whether whole-rock chemistry might serve as a proxy for gold content in pyrite. The study is being carried out in collaboration with Ross Large and Leonid Danyushevsky at the ARC Centre of Excellence in Ore Deposits (CODES), University of Tasmania, and will be written up upon completion.

RECENTLY RELEASED STUDIES

Two contracted petroleum studies initiated last fiscal year were completed and published in 2012. The first was a scoping study of Yukon's eight onshore basins to assess their potential for hosting unconventional oil and gas resources (Hayes and Archibald, 2012). The study identifies which basins have potential to host unconventional petroleum resources, and what type(s) of unconventional resources may exist. This information will support resource management and planning, and may serve as an aid in defining future research for YGS. The second study was a re-assessment of the petroleum potential of Whitehorse trough (Hayes, 2012). Since the original assessment was completed in 2001 (National Energy Board, 2001), a significant amount of new information about the geology of the trough has been generated, including new bedrock maps, two seismic surveys, and targeted petroleum studies. These new datasets provided better geologic constraints for the updated assessment, which identified a total of nine play types (five conceptual and four speculative). The five new conceptual plays are all conventional, and are estimated to contain a total of 2920 BCF gas and 107 MMBO oil (unrisked in place).

TARGETED/THEMATIC STUDIES

Over the last two years, YGS retained Wayne Jackaman to carry out a stream sediment sample re-analysis project. The project had three components: archived pulps from GSC's collection of stream sediment samples were sent for re-analysis by aqua-regia digestion ICP-MS for 53 elements; archived samples were repackaged to ensure their integrity for future re-sampling; and original field maps were scanned to allow end users access to the originally-plotted sample locations. The scanned maps have not yet been released.

Since the project was initiated, eight new Open Files have been released with new analyses from eight 1:250000 map areas (full and partial NTS map sheets) in Selwyn basin and two map areas in the Dawson Ranges (Fig. 4). Samples from two map areas (106C, D) were missing from the GSC Archives and so were not re-analysed. The next planned step for improving Yukon's regional geochemical database is to undertake some value-added work. YGS plans to fund a case study in one or two areas with known mineral occurrences to assess whether the geochemical signatures of different styles of mineralization can be isolated in the stream sediment data. Depending on the effectiveness of the case study and the level of interest, further such studies may be carried out next year.

COMMUNITY MAPPING

Kristen Kennedy and Sarah Laxton collaborated with the Northern Climate Exchange (NCE) at Yukon College on a community mapping project in and around Burwash Landing and Destruction Bay in 2012 (Fig. 2). The project, coordinated by NCE, was designed to help predict and mitigate landscape hazards that may be associated with climate change. The study has a number of facets, including ground penetrating radar surveys to define the extent and depth of permafrost (led by Laxton), and detailed (1:20000 scale) surficial mapping (led by Kennedy). A written report and a map delineating areas of high/medium/low risk for landscape hazards (such as flooding, slumping, landslides) will be generated from these and other datasets collected by the team; they are expected to be released in the spring.

AGGREGATE STUDIES

Three aggregate studies have been undertaken this year. The objective of the first study is to improve the effectiveness of geophysical tools for identifying buried aggregate. The study is focused on one planned and three existing quarries in the Whitehorse area, and the intended outcome is to maximize aggregate extraction, particularly of buried aggregate that may exist in pits that are considered to be depleted. Golder Associates has been contracted to carry out the work. A final report, including raw and interpreted geophysical data and field observations, will be released in the spring.

Two other, relatively small aggregate studies were also completed this year, both driven by requests for assistance to locate aggregate resources for local use. For one study, Jeff Bond undertook air photo interpretation and followed up with hand pitting and a ground penetrating radar survey (by Sarah Laxton) along the south terrace of 10 Mile Creek near the community of Teslin. A total resource estimate of over 3.3 million cubic metres of aggregate was delineated: this resource is located significantly closer to Teslin than the pit that is currently in use by the community. Its development will reduce transportation costs considerably. The second study, carried out by Jeff Bond at the request of the Department of Highways, focused along a section of the Robert Campbell Highway near Frances Lake where Highways required gravel and few quarries exist. Several prospects were generated from air photo interpretation, and the Transportation Division followed up to evaluate them. Aggregate is now being produced from two of the newly-identified sites.

GROUND PENETRATING RADAR STUDIES

In addition to the application of ground penetrating radar (GPR) to community mapping and aggregate studies, Sarah Laxton is carrying out GPR surveys to support a number of studies with external partners. She has been working with Yukon's Heritage Branch on a project aimed at identifying unmarked graves in the Dawson City area. Specifically, her role has been to evaluate the effectiveness of GPR as a tool for imaging known grave sites in ground with extensive permafrost. In addition, she has been working with the RCMP in Whitehorse to image buried human remains, using pigs as proxies for corpses.

Sarah is also involved in a study of the glaciers in the Upper Yukon River basin, including the Llewellyn Glacier at the south end of Atlin Lake. The goal of the project, which is funded by Yukon Energy Corporation, is to assess the amount of water that might be contributed to the Yukon River via glacial melt, based on future climate change scenarios. Water volume is of interest to the Yukon Energy Corporation, as there are implications for the hydro damn located downstream in Whitehorse.

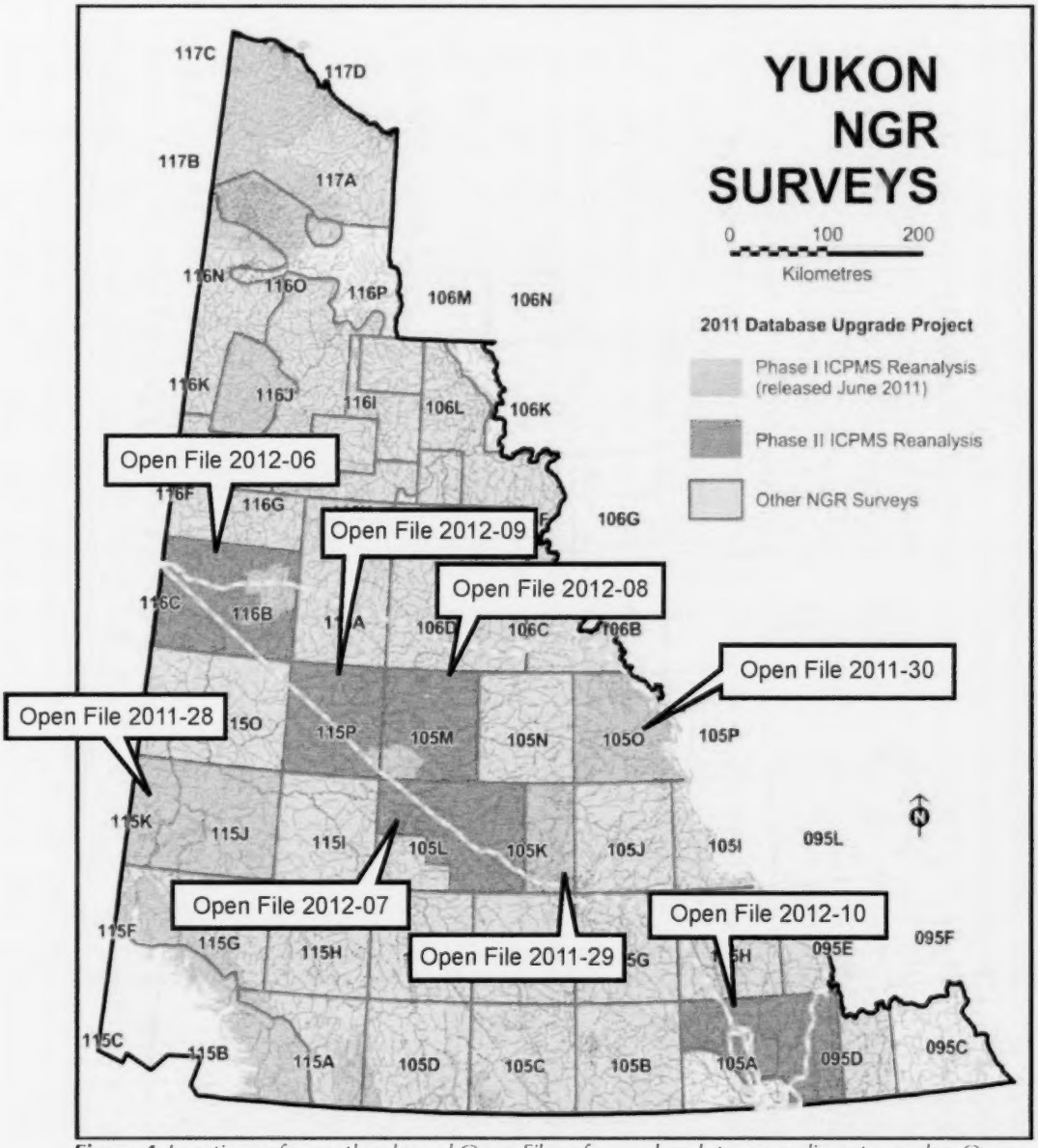


Figure 4. *Locations of recently-released Open Files of re-analysed stream sediment samples. Open File numbers shown.*

GEOPHYSICS

A portion of the SINED grant provided by CanNor has been allocated for geophysical projects (see Table 2). The bulk of these funds will be used for the acquisition of new geophysical data this winter. The type of survey and location are still to be determined. Input was provided by YGS' Minerals Technical Liaison Committee in November, and ideas included collecting in-fill gravity data over a large gravity low in the Klondike; imaging selected steep structures of interest using EM; and exploring the possibility of purchasing an existing regional Z-TEM dataset that covers part of Selwyn basin (Macmillan Pass area). The remaining funds have been allocated for a case study involving the inversion and modeling of existing geophysical and bedrock geology datasets to produce mineral prospectivity maps. A consultant to undertake the study is currently being sought.

UNIVERSITY COLLABORATIONS

YGS provided logistical and/or financial support for a number of university projects this year. Interim results from a number of these projects were presented at the Yukon Geoscience Forum in November, and overviews of some of the projects are included in YEG 2012.

WHITE CHANNEL GRAVELS

Robert Lowther (Leeds University) is continuing work on PhD study of the White Channel gravels in the Klondike. He is undertaking detailed stratigraphic studies in order to define parameters to model the White Channel fluvial system in a flume tank, to better understand the depositional setting and help estimate transport distances of gold grains. A significant discovery made this summer was the identification of an organic-rich layer within the section that contains diatoms and pollen spores; work is underway to date the unit.

NORTH YUKON PHOSPHATE MINERALS

Kimberly Tait from the University of Toronto is supervising a PhD study of phosphate minerals from the Rapid Creek and Big Fish River areas in the Richardson Mountains. The minerals include lazulite, wardite, arrojadite, and bobdownsite; these minerals are rare and their petrogenesis is poorly understood. This is the first year of the project, and field work involved detailed mapping and sampling of mineral occurrence localities. Preliminary results of the study were presented at the 2012 Yukon Geoscience Forum.

MICHIE CREEK-TAGISH MAPPING PROJECT

YGS supported 1:50000 scale bedrock mapping in 2012 by Luke Bickerton, an MSc candidate at Simon Fraser University. The study area is in the northern part of the Cache Creek terrane in the Michie Creek-Tagish area (parts of 105D/9 and 8; Fig. 2). New mapping has identified a previously undocumented package of siliclastic rocks and a gabbro complex, and has improved our understanding of the area's structural history. Results of the field work are presented in YEG 2012 (Bickerton, 2013).

FINGERPRINTING OF PLACER GOLD GRAINS FROM THE KLONDIKE

YGS is funding a case study by Ryan Mathur from Juniata College (Pennsylvania) to analyze Re and Os content of placer gold grains from the Klondike. Re-Os isotopic compositions of gold grains may allow determination of their ages and help identify the origin of placer *vs.* lode gold deposits in the region. Samples of placer gold grains have been provided by Jim Mortensen (University of British Columbia) and John Chapman (Leeds University), and analytical work has been initiated; no results have been released to date.

NEOPROTEROZOIC STRATIGRAPHY

Regional stratigraphic study of early Neoproterozoic sequences continued this year in the Ogilvie and Wernecke mountains. The research team is led by Francis McDonald (Harvard University) and Galen Halverson (McGill University), and includes three students (two graduate and one undergraduate) who are writing theses and papers based upon fieldwork.

Bedrock observations, new ages (isotopic and paleontological), and chemostratigraphic data have led to new stratigraphic interpretations and revised correlations to Neoproterozoic strata. The work has implications for the timing and mechanisms of late Proterozoic tectonic evolution of this part of Laurentia and the break-up of Rodinia. YGS provided access to a contracted helicopter to support the field component of the project.

FISSION TRACK DATING IN THE RACKLA BELT

Greg Arehart (University of Nevada/Reno) is carrying out fission track analyses of apatites and zircons from the Rackla belt as a contribution to the YGS' Rackla belt project. The premise of the study is to determine whether paleo-plumbing system(s) associated with warm hydrothermal fluids can be identified in the belt using apatite fission track ages. Such hydrothermal systems have been delineated around Carlin gold deposits in Nevada, and if they can be modeled in Yukon it may help to identify new, undiscovered Carlin-style mineralization in the territory.

Samples were collected during the course of regional mapping and have been submitted to the lab for analysis. It is anticipated that some preliminary data will be ready for presentation at the 2013 Mineral Exploration Round Up in Vancouver.

STREAM SEDIMENT GEOCHEMISTRY IN THE MOUNT FREEGOLD AREA

Heiko Mueller, an MSc candidate at the University of Alaska Fairbanks, is developing a statistical method that improves on using elemental concentrations from stream sediment samples to identify mineral exploration targets. The objective of the study is to compare element distribution patterns in stream sediments against known upstream bedrock occurrences to assess their ability to detect weak or distant mineral anomalies. The technique is being applied to the Mount Freegold area, and if successful, could provide a useful exploration tool in terrains such as the Dawson Range.

ONGOING ACTIVITIES

MONITORING

Staff from YGS' Mineral Services unit tracked mineral exploration activity in the territory via media releases and websites, and made field visits to 29 exploration projects this year to collect first-hand information on exploration activities, results, and expenditures. Highlights of exploration and development activities were presented at the Yukon Geoscience Forum in November and are summarized in this volume (Pigage *et al.*, 2013).

In September, Tiffani Fraser and staff from EMR's Oil and Gas Resources Branch visited two well sites operated by Northern Cross Ltd. in Eagle Plain basin: the McParlon A-25 and the E. Chance E-78 wells. These wells are the first two of a six-well exploration program scheduled to be completed by spring 2013. More information on the exploration program is presented by Adilman (this volume).

YGS continued its program of permafrost monitoring across the territory in 2012. Sarah Laxton maintains data on active layer thickness from fourteen locations in Yukon and collects ground temperature data annually from stations in six communities (Whitehorse, Destruction Bay, Carmacks, Faro, Beaver Creek, and Dawson City). The data form part of a broader permafrost network that includes data from the Geological Survey of Canada and the University of Alaska Fairbanks, as well as YGS data (http://permafrost.gov.yk.ca).

A new monitoring program was initiated this year to document seismic activity: this work is part of a continent-scale, multi-disciplinary study being led by a consortium of American universities. The study, called EarthScope, is funded by United States' National Science Foundation and entails several thematic research components, including the study of earthquake processes, the interplay between tectonism and magmatism, and the distribution of stress in the lithosphere.

One of the components of the project involves the collection of seismic data via a transportable array of 400 broadband seismometers. Since 2004 the array has been deployed in stages across the continental United States; the next stage of the experiment starts in 2013 and will involve installations across Alaska and parts of Yukon and NWT. In advance of the deployment, YGS acquired a single seismometer which was installed beside the Dempster Highway near Eagle Plains Lodge in October. Data from this station can be viewed in real time on the project website (http://usarray.seis.sc.edu/; the station code is EPYK), and will comprise part of the dataset that will be collected across this region over the next several years.

INFORMATION SERVICES

The Technical Services unit of YGS continued to work on upgrading its corporate database and web services this year. Based on feedback from the 2011 Minerals Technical Liaison Committee meeting, a number of changes were made to the survey's web-based search tools. Among them, reference information for publications that YGS does not distribute (such as GSC publications and journal articles) was removed, as the metadata required cleaning and the publications cannot be downloaded from the YGS website. Links to other web applications (Geoscan and CanGeoRef) have been added to the site to help users find non-YGS publications. New to the YGS application is a browse feature for YGS publications; it displays a series of cascading folders organized by publication type and year (similar in appearance to a Windows Explorer view). Industry Assessment Reports can now be accessed via the publications search tool, and work is underway to link them to MINFILE occurrences.

A few changes designed to streamline and accelerate data entry into the MINFILE component of YGS' corporate database have been proposed and discussed internally over the last couple of years. In October, Mineral Services met with a small group of mineral industry representatives to seek input on how to improve the currency of data without removing important fields. A suggestion was made to hire additional staff to undertake data research and entry, and to create annual "space-holders" to document newly-discovered occurrences, recognizing that these

interim occurrences would need to be updated each winter. It was also proposed that YGS develop a template for companies filing assessment reports that could capture key MINFILE data.

In addition to managing and distributing raw data online, YGS released 33 publications in 2012 (30 Open Files, 2 Miscellaneous Reports, and a YEG Volume containing 15 papers). A total of six papers by YGS geologists were published in external, peer-reviewed journals. A list of 2012 publications is provided at the end of this volume.

H.S. BOSTOCK CORE LIBRARY

Since the completion of the H.S. Bostock Core Library, its rock cutting facilities, sieving equipment, and core layout area have seen significant use by clients. Users to date have included prospectors, junior exploration companies, contractors, Yukon College, and a local artist. Clients seeking access to the core library facilities should contact the Core Library Manager (johann.slam@gov.yk.ca) or Mineral Services (www.geology.gov.yk.ca/core_library.html). In addition to space for sample viewing and preparation, the core library has a large boardroom where its teaching collections are stored. The facility has been used for a number of teacher workshops, and staff hold meetings and informal technical presentations here on a regular basis.

One of the intended uses of the core library's lab space is to provide clients access to YGS' X-Ray Fluorescence (XRF) analyser. Use of the XRF as a hand-held device requires certification, and not all of YGS' clients have been certified. In order to make the instrument accessible to non-certified clients, YGS has purchased a test stand that shields users from exposure to X-Rays and allows operation of the instrument remotely. Unfortunately, the instrument is not working properly in the stand; it has been sent for repairs to address the issue, and will be available for use sometime in the spring.

DIAMOND DRILL CORE PROGRAM

Progress is being made on enhancing Yukon's diamond drill core program. The drill core collection consists of over 27000 boxes of core from more than 275 properties. Once it has been moved from the old core library, it will be stored outside in covered racks in the compound adjacent to the new building.

Over the past summer, Johann Slam worked to identify and prepare storage space for the core in advance of the move, and Lauren Blackburn was hired to document the state of the core and reconcile the physical collection with the inventory recorded in the drill core database. The database component of the project is continuing over the winter to ensure a complete record of the collection exists before the core is moved.

Concurrent with the work underway on the drill core, YGS is drafting a policy document for the management of the collection. The policy will be based on the principle that the collection is a valuable resource to be managed for the public good. Before finalizing the core program a number of practical challenges need to be addressed, including space limitations, outdoor storage of the core (which will make winter access difficult), and the fact that in the past, conditions for accepting core donations have not always been consistent. The latter issue has potential to create conflicts between the expectations of donors and users; for example, a donor might anticipate having discretion to decide who may access their core, whereas a user might expect that all core is publicly accessible. YGS has consulted other provincial surveys in Canada regarding their core management policies and will be circulating a client survey in the new year seeking input from clients on questions such as core confidentiality periods and core acceptance requirements before finalizing the Yukon drill core program.

By spring 2013, YGS anticipates having criteria defined for the Yukon drill core program, and over the summer work will get underway to move the core. During the move, core boxes will be palletized and stacked in stages, likely making it inaccessible to clients. It is anticipated that by late fall the move will be complete and the core program implementation will begin.

SUMMARY

This fiscal year YGS grew its capacity for bedrock and surficial mapping, and the staffing of a second oil and gas project geologist in the spring will complete the current growth phase. With the retirement of Bill Lebarge, new relationships between YGS staff and the placer sector are being built. Input from placer miners on the types of research projects and information services they would like to see are welcome. One of the most significant new initiatives underway at the survey is the development of a robust drill core program that will provide access to drill core and to the facilities to log and process samples. While it will take another year to complete this work, developing the drill core program will be an exciting challenge.

Next fiscal year marks the final year of the four-year SINED funding program, and while YGS has a draft plan for how to invest year-four resources, changes to the plan to address emerging priorities are possible. In addition to advice on 2013-14 activities, clients are encouraged to provide feedback on SINED projects that have been completed; this input will help to set priorities for future work and provide useful indicators of the value of the SINED investment to CanNor (www.geology.gov.yk.ca/recent.html).

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Yukon Hardrock Mining, Development and Exploration Overview 2012

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Pigage, L.C., Sack, P.J., Torgerson, D., Lewis, L.L., and Deklerk, R., 2013. Yukon Hardrock Mining, Development and Exploration Overview 2012. *In:* Yukon Exploration and Geology Overview 2012, K.E. MacFarlane and M.G. Nordling (eds.), Yukon Geological Survey, p. 27-66.

INTRODUCTION

In 2012, Yukon was not able to sustain or exceed the record-breaking exploration activity recorded for 2011. It was a challenging year with a cool spring resulting in a high snowpack extending into June. A major rainstorm in June also caused washouts along the Alaska Highway and Nahanni Range Road, further delaying some exploration programs. The greatest challenge, however, was the inability of junior companies to raise money on the exploration stock exchanges.

In spite of these challenges, over 80 exploration projects were ongoing in Yukon during the 2012 field season (Fig. 1, on inside front cover); 32 of these projects had expenditures of over $1 million. The exploration overview presented in this report is a progress report rather than a comprehensive summary of Yukon exploration and mining. Many results are still pending at the publication deadline of this volume and thus are preliminary in nature. Summary statistics and analytical results are based on news releases by companies and personal communication with company representatives.

Exploration spending in 2012 is estimated to have been approximately $146 million (Fig. 2), similar to estimated exploration expenditures of $160 million for 2010, but well below 2011 estimated exploration expenditures of $300 million. Gold exploration accounted for 69% of expenditures (Fig. 3). Zinc-lead exploration totaled 11% of expenditures; silver exploration and copper exploration accounted for 4% and 9% of total exploration expenditures, respectively. Exploration for Ni and PGE constituted 7% of exploration spending for 2012.

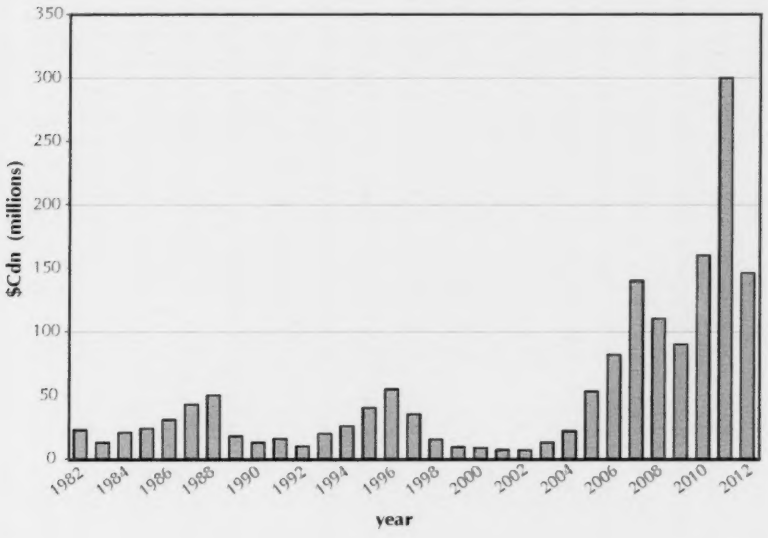

Figure 2. *Estimated exploration expenditures on Yukon projects, 1982-2012.*

Claim staking in 2012 was way down from 2011 and only 11339 quartz claims were staked by the end of November (Fig. 4); in contrast 110442 quartz claims were staked by the end of November in 2011. Although staking of new claims was minimal, claims in good standing remained high in 2012 with exploration companies evaluating their holdings. It is expected that claims in good standing will decrease in 2013 as companies consolidate their quartz claims based on the results of the 2012 field season. Most of the staking activity (Fig. 4) occurred in the Mayo (47%) and Whitehorse (28%) mining districts. The greatest number of claims staked was in the month of August.

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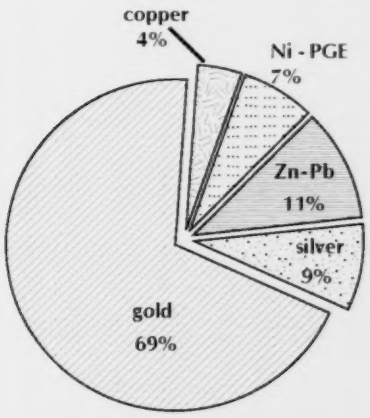

Figure 3. *Pie chart diagram of estimated % exploration expenditures on Yukon projects, 2012 sorted by primary metals of interest for exploration project. Total exploration expenditures for 2012 were $146 million.*

The number of quartz claims in good standing rose to a total of 254 896 at the end of November 2012, representing a slight increase in the number of claims in good standing over 2011 (Fig. 5). The number of quartz claims in good standing represents slightly less than 11% of the total Yukon land base.

Exploration activity continued to range from grassroots prospecting and regional soil and silt sampling to evaluating drill targets. Many companies used field-based, semi-quantitative analysis of associated pathfinder elements (such as arsenic for gold) using portable x-ray fluorescence (pXRF) analyzers as a means of focusing exploration activity to preliminary targets before receiving analytical results.

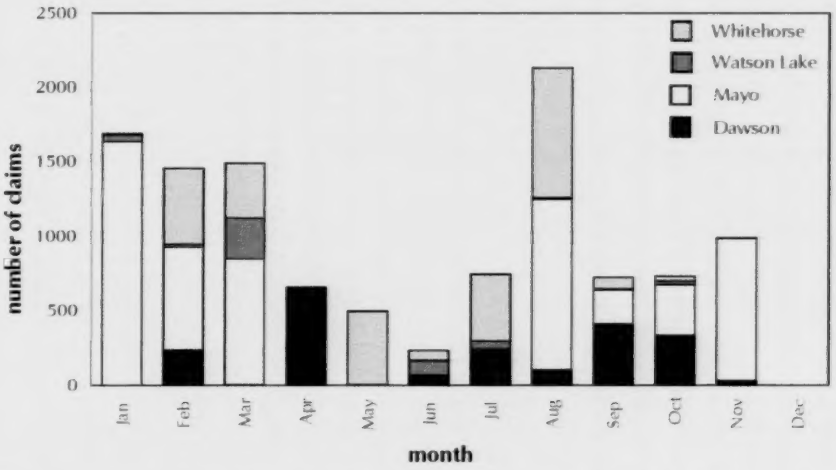

Figure 4*. 2012 claim staking statistics for each mining district in Yukon by month.*

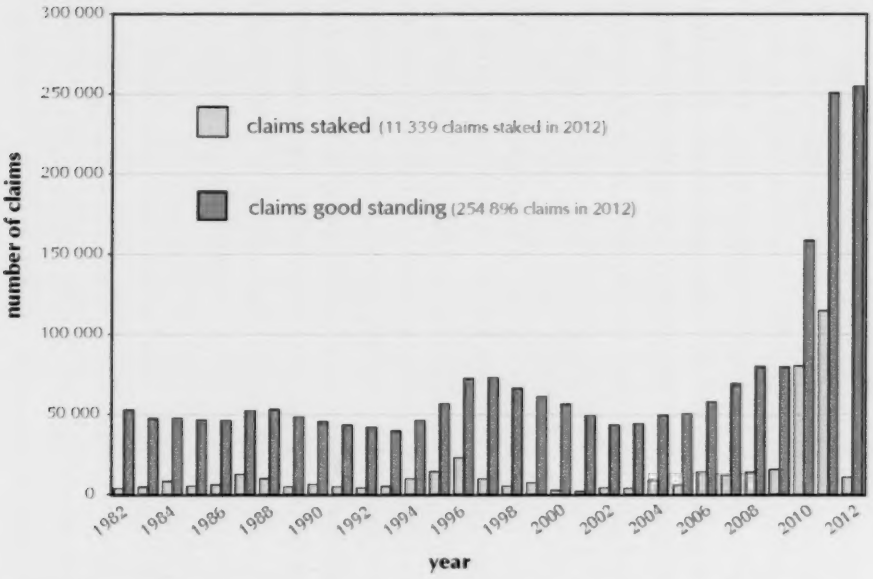

Figure 5. *Number of claims staked and number of claims in good standing in Yukon between 1982 and November 30, 2012.*

MINING AND MINE DEVELOPMENT

Yukon, in 2012, had three operating hard rock mines: Minto and Bellekeno were fully operational, and Wolverine was ramping up towards full production. Mine development expenditures in 2012 for these three mines are estimated at $98 million (Fig. 6).

The **Minto** (Yukon MINFILE 115I 012) high-grade Cu-Au-Ag open-pit mine, operated by Capstone Mining Corp. (www.capstonemining.com), extracted 709 192 tonnes of ore during the first nine months of 2012 and processed 1 029 259 tonnes of mined and stockpiled ore, producing 12.2 million kg recovered copper, 4384 kg recovered silver and 367 kg recovered gold from copper concentrates trucked to Skagway, Alaska (modified from Capstone's October 11, 2012 News Release). Mill throughput during the first nine months averaged 3874 tonnes per day, up from 2011. Copper recoveries during this period averaged 90%. Recoveries of silver and gold averaged 84% and 69%, respectively. Production in Q4 is expected to have similar throughputs. Mining in the Main Pit was completed in April 2011. Open pit mining successfully transitioned to the Area 2 open pit south of the older Main open pit; the Main pit is now being used as a tailings pond facility.

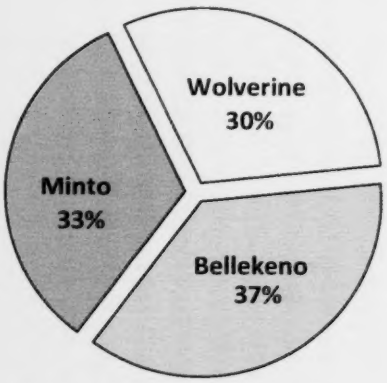

Figure 6. *Pie chart diagram of estimated mine development % of expenditures in 2012. Total development expenditures for 2012 were $98 million.*

On July 31, 2012 Capstone released a new Phase VI preliminary feasibility report for the Minto Mine area. This report contains a revised resource estimate for five deposits in the Minto area (Table 1; Fig. 7) as part of a prefeasibility report (Mercer and Sagman, 2012). The mineral resource in Table 1 for the **Main** deposit was calculated by subtracting the resources listed in tables 1-2, 1-3, 1-4, and 1-5 from the total resource listed in table 1-6 (tables from Mercer and Sagman, 2012). Mining of the resources listed in Table 1 will be by open pit and underground methods; the underground material constitutes approximately 32% of the remaining material. At proposed mining rates, the resources indicated in Table 1 will be depleted in 2019; milling of the mined material is expected to continue until 2022.

In October 2012 Capstone announced additional mineral resource estimates for the **Fireweed** area (east of the Minto East area) and the **Inferno North** area north of the Minto Main area (Table 2; Fig. 7); these resource estimates are based on a 29 500 m exploration drilling program completed in 2012. If viable, the resources indicated in Table 2 are more than was mined during 2012.

Table 1. *Mineral resource by class for different areas of the Minto property (modified from Mercer and Sagman, 2012). *resource remaining as of December 31, 2011. **includes Area 2, Area 118, Copper Keel, and Wildfire resource subdomains.*

Area	Classification	Tonnes (000)	Copper (%)	Gold (g/t)	Silver (g/t)	Cu cutoff (%)
Main Deposit (dormant)*	Measured (M)	378				0.5
	Indicated (I)	260				
	Sub-total (M+I)	638				
	Inferred	2				
Minto South Deposit**	Measured	1087	1.21	0.45	4.07	0.5
	Indicated	2856	0.98	0.32	3.44	
	Sub-total (M+I)	3844	1.04	0.38	3.72	
	Inferred	8134	0.81	0.24	2.93	
Ridgetop	Measured	1531	0.98	0.25	2.14	0.5
	Indicated	3534	0.87	0.30	2.87	
	Sub-total (M+I)	5064	0.91	0.28	2.65	
	Inferred	318	0.75	0.13	1.57	
Minto North	Measured	1844	2.15	1.11	7.7	0.5
	Indicated	264	1.04	0.6	5.76	
	Sub-total (M+I)	2108	2.01	1.04	7.46	
	Inferred	25	0.84	0.40	4.4	
Minto East	Measured	688	2.30	1.07	6.3	0.5
	Indicated	489	1.74	0.70	4.6	
	Sub-total (M+I)	1177	2.07	0.92	5.57	
	Inferred	14	1.03	0.45	2.8	

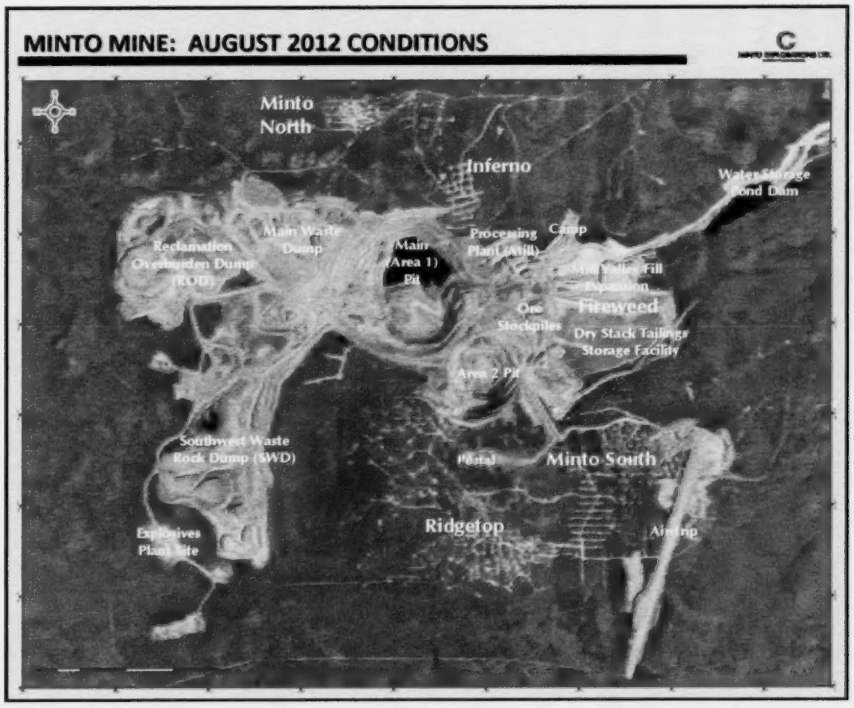

Figure 7. *Vertical airphoto image of Minto Mine, August 2012. Mining and exploration areas are indicated on the photo. Modified from image courtesy of Capstone Mining Corp.*

Table 2. *Additional mineral resources by class in the Fireweed and Inferno North regions (modified from Capstone's October 25, 2012 News Release).*

Area	Classification	Tonnes (000)	Copper (%)	Gold (g/t)	Silver (g/t)	Cu cut-off grade (%)
Fireweed	Indicated	2152	2.14	1.01	8.9	1.2
	Inferred	1506	1.64	0.66	5.4	
Inferno North	Inferred	688	2.06	0.82	6.5	1.2

Alexco Resource Corp. (www.alexcoresource.com) mined 64 905 tonnes of ore during the first nine months of 2012 and milled 68 033 tonnes of ore at the **Bellekeno** (Yukon MINFILE 105M 001) Ag-Pb-Zn mine in the historic Keno Hill district. The mill produced 9482 tonnes of lead concentrate averaging 4914 g/t Ag and 63% lead, and 4133 tonnes of zinc concentrate having an average grade of 429 g/t Ag and 45% zinc (Alexco's October 15, 2012 News Release). Concentrate is trucked to Skagway, Alaska.

During 2012 Alexco rehabilitated the underground workings at the **Lucky Queen** and **Onek** deposits (Fig. 8) in preparation for future production. Mining at the two deposits is scheduled to start once regulatory authorizations are received, possibly in late 2012 or early 2013.

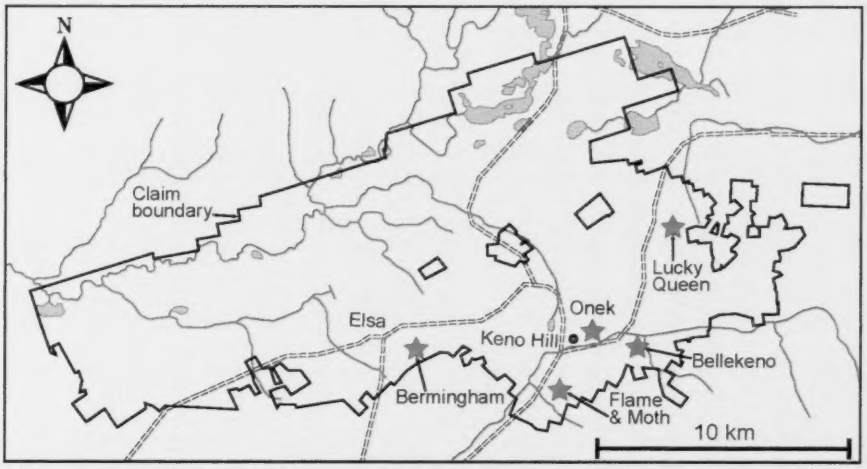

Figure 8. *Map of Keno Hill district indicating locations of Alexco Resource Corp. development and exploration projects.*

New mineral resource estimates for the historic **Bermingham** deposit and the new **Flame & Moth** deposit were released by Alexco Resource Corp. in September 2012 (Table 3). Phase 1 exploration by Alexco in 2012 concentrated on shallow drilling of the Flame & Moth property for a total of 3893 m in 23 drill holes (Table 4). Drilling confirmed that mineralization near surface consists of two north-northeast striking, moderately southwest-dipping, mineralized structures up to 10 m apart, with each structure averaging about 3 m true width. The strike length of the mineralized veins was extended to over 825 m. Mineralization consists of pyrite, galena, sphalerite, pyrrhotite and associated silver sulphosalts, arsenopyrite, and chalcopyrite in a gangue of quartz and siderite. Alexco plans to provide an updated mineral resource estimate for the Flame & Moth deposit in the first quarter of 2013.

Table 3. *Mineral Resource by class for areas in the Keno Hill district (Arseneau, 2012a,b).*

Area	Classification	Tonnes (000)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)
Bermingham	Indicated	257	460	0.06	2.00	2.10
	Inferred	102	372	0.09	1.12	1.83
Flame and Moth	Indicated	759	453	0.39	1.73	6.97
	Inferred	387	312	0.26	1.18	4.06

Table 4. *Significant composited intercepts from diamond drilling at the Keno Hill Flame and Moth property (modified from Alexco Resource Corp.'s October 9, 2012 News Release). *depth of start of intersection down drill hole. **30 g/t Ag cut-off and a maximum of 2 m unmineralized internal dilution. Drill widths are drill intersections, not true widths.*

Drillhole	Depth of intersection (m)*	Intersection**
K-12-0430	259.48	1705 g/t Ag, 0.46 g/t Au, 6.07% Pb and 10.01% Zn over 4.54 m
K-12-0405	141.41	880 g/t Ag, 0.31 g/t Au, 1.02% Pb and 5.35% Zn over 7.94 m
and	152.00	523.4 g/t Ag, 0.36 g/t Au, 0.94% Pb and 3.14% Zn over 15.00 m
K-12-0400	106.77	460 g/t Ag, 0.10 g/t Au, 1.77% Pb and 4.37% Zn over 8.23 m
K-12-0409	134.30	364 g/t Ag, 0.17 g/t Au, 1.74% Pb and 4.16% Zn over 18.90 m
K-12-0414	152.00	362 g/t Ag, 0.23 g/t Au, 1.83% Pb and 3.40% Zn over 22.35 m
K-12-0416	50.00	439 g/t Ag, 0.31 g/t Au, 1.74% Pb and 4.72% Zn over 11.17 m
K-12-0418	46.12	408 g/t Ag, 0.20 g/t Au, 1.08% Pb and 4.18% Zn over 3.54 m
K-12-0399	61.04	388 g/t Ag, 0.31 g/t Au, 2.39% Pb and 10.16% Zn over 12.60 m

In March 2012, the **Wolverine** (Yukon Occurrence 105G 072) high-grade Zn-Ag-Cu-Pb-Au underground mine reached commercial production of 1020 tonnes/day, which is 60% of rated mill capacity. Wolverine Mine is owned by Yukon Zinc Corp. (www.yukonzinc.com), a private company, and produces zinc, copper, and lead concentrates which are trucked to the port of Stewart, British Columbia. Yukon Zinc extracted over 307000 tonnes of ore and milled over 294000 tonnes during the first nine months of 2012. The operation is on pace to produce over 80% of full capacity by the end of 2012 and full production of 1700 tonnes/day is anticipated in early 2013. At the designed milling rates, the mine has an expected life of ten years (Regan, 2007).

Yukon Zinc Corp. is the first company to receive the new Robert E. Leckie award for Responsible and Innovative Mining Practices; they received the award at the Yukon Geoscience Forum in November 2012. The award was presented to Yukon Zinc for installing a functioning biochemical water treatment system and enlarging a lined tailings facility at Wolverine Mine, thereby decreasing the mine's overall environmental impact.

EXPLORATION

The hardrock exploration overview presented in this report highlights exploration activity during 2012. Exploration results presented here are not a complete reporting for any particular property or exploration project; rather they are snapshots of reported results as of December 15, 2012.

This overview report has been subdivided into two geographic areas (Fig. 9) for purposes of presentation: northeast of the Tintina Trench and southwest of the Tintina Trench. Within each geographic area, the overviews have been further organized by commodity and inferred type of mineralization.

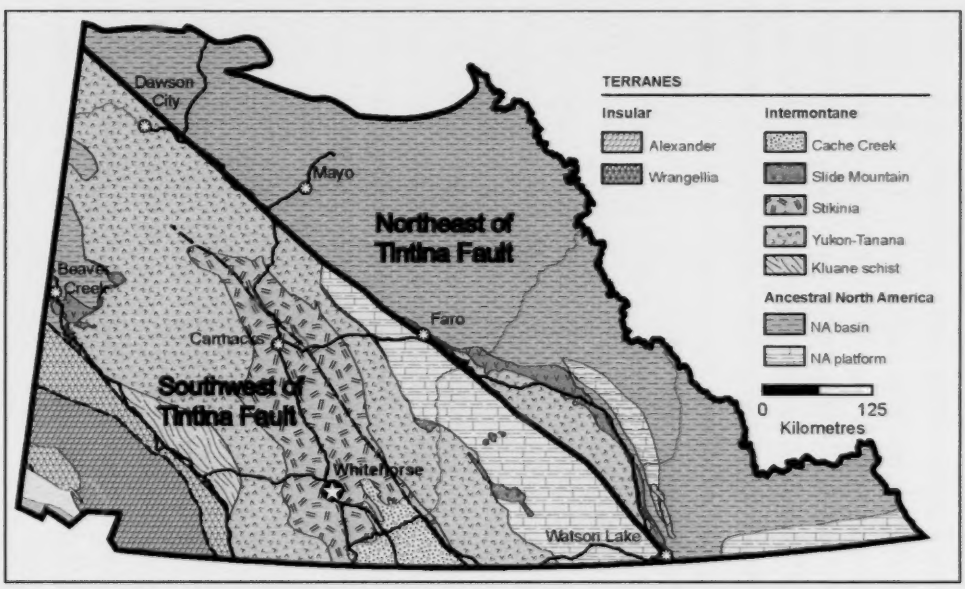

Figure 9. *2012 exploration map for Yukon. Heavy black line going from upper northwest to lower southeast is along Tintina Trench and divides map into two geographic areas: northeast of Tintina Trench and southwest of Tintina Trench.*

Gold was the primary commodity of focus for exploration companies, and gold exploration was primarily conducted in the Selwyn basin and White Gold-Dawson Range areas (Fig. 1). Located in central and east Yukon, the Selwyn basin gold district extends from east of Tombstone Park down to northeast of Watson Lake in a broadly curvilinear trend. Extensive staking in Selwyn basin in 2011 laid the framework for low impact exploration consisting of geological mapping, prospecting, soil sampling, and trenching over broad areas.

The Dawson Range-White Gold area of western Yukon continued to attract major attention with extensive soil sampling, trenching and drilling. Exploration was primarily focused on 'White Gold'-style mineralization which can be broadly defined as structurally-hosted gold. Based on work at the Coffee property, the gold is very fine grained and occurs in steeply dipping, brecciated, and oxidized zones that have sericite-silica alteration (Wainwright *et al.*, 2011). At the time of writing, three NI 43-101 compliant resource estimates have been completed for this area, two of which are associated with the White Gold property held by Kinross Gold Corp. and one for the Coffee property held by Kaminak Gold Corp. Additional resource estimates for several properties are expected to be completed in 2013.

SELWYN BASIN

Precious metals – gold

Exploration in Selwyn basin (Figs. 1 and 9) during 2012 was focused largely on gold targets; Carlin-style deposits, intrusion-related deposits, and orogenic deposits were the predominant mineralization styles of interest. Most companies this year spent their time evaluating the large land positions they acquired over the previous two years. Though the overall level of activity was down from last year, there were 11 projects in the Selwyn basin that each spent over $1 million dollars in 2012.

Carlin-style

The focus of ATAC Resources' (www.atacresources.com) 2012 season switched from last year's Osiris zone to drilling the **Conrad zone** (Yukon MINFILE numbers pending; Fig. 10) and investigating regional targets. Drilling at the Conrad has delineated a near surface zone with a strike-length of over 800 m. The best drill intercept to date on the property is 42.93 m of 18.44 g/t Au in diamond drillhole OS12-114 (Table 5). ATAC Resources has had continued exploration success near the Osiris/Conrad, with an intercept of 14.86 m of 10.54 g/t Au in drillhole OS-12-173 at the newly discovered **Sunrise zone**. ATAC has also started to have exploration success outside the Osiris/Conrad cluster of showings with the discovery of the **Anubis** and **Pharaoh** showings, respectively, 10 km west and 13 km northeast of Osiris/Conrad (Table 5; Fig. 11). ATAC spent $19 million, completed more than 37000 m of diamond drilling in 2012, and collected over 20000 soils and rock samples across the property. The continued success at Conrad, Osiris, and Isis, combined with the initial success at Sunrise, Anubis, and Pharaoh, and the over 1600 km² land package ensures that ATAC has plenty of exploration targets for future years.

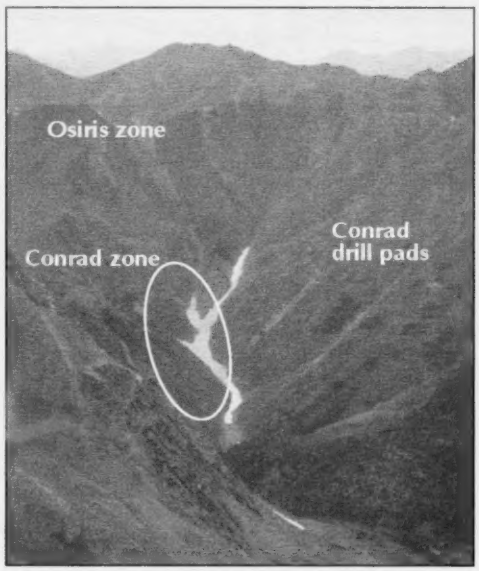

Figure 10. *View looking west at ATAC Resources Ltd.'s Conrad zone. The Osiris zone is located on the back side of the ridge directly behind the label.*

Table 5. *Significant diamond drill intercepts from the Nadaleen Trend of the Rackla Gold Project (modified from ATAC Resources July 18, August 21, October 3, October 17, October 24, and November 21, 2012 News Releases). *The reported intersections are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
OS-12-114	Conrad	66.2	18.44 g/t Au over 42.93 m
OS-12-103	Conrad	34.4	11.24 g/t Au over 46.06 m
OS-12-178	Conrad	41.3	8.79 g/t Au over 26.95 m
including		53.2	14.90 g/t Au over 15.04 m
OS-12-184	Conrad	146.9	4.05 g/t Au over 51.82 m
OS-12-187	Conrad	310.0	17.09 g/t Au over 9.95 m
AN-12-001	Anubis	63.1	19.85 g/t Au over 8.51 m
AN-12-003	Anubis	69.2	9.08 g/t Au over 16.76 m
OS-12-173	Sunrise	1.0	10.54 g/t Au over 14.86 m
OS-12-125	Isis East	92.4	3.68 g/t Au over 33.53 m
I383989	Pharoah	grab sample	79.40 g/t Au

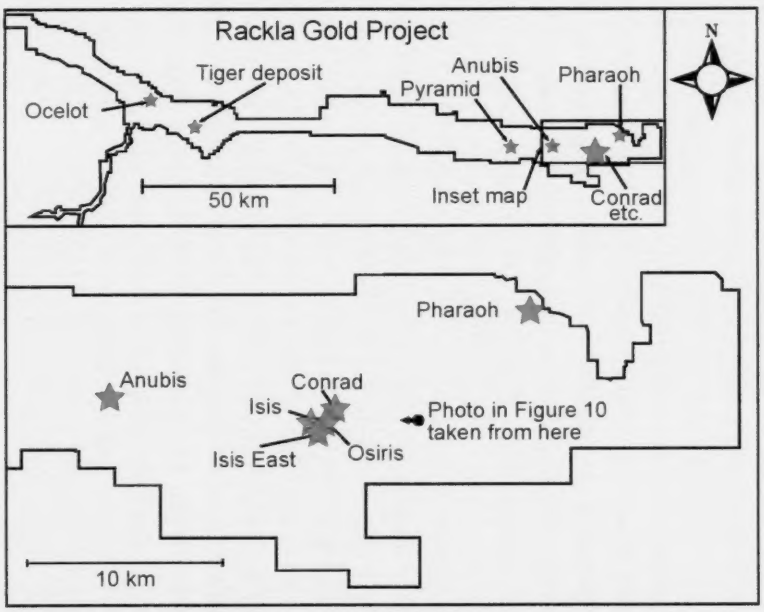

Figure 11. *ATAC Resources Ltd.'s Rackla gold project claim map indicating the mineralized zones found to date (modified from ATAC Resources' October 3, 2012 Pharaoh location map).*

Anthill Resources (www.anthillresources.com) conducted a $4.5 million exploration program on the **Einarson** claims (Yukon MINFILE numbers pending; Fig. 12) located to the east and south of ATAC Resources' Rackla Gold project claims. Anthill completed a property-wide silt program (3802 samples), and collected 8555 soil samples and 3976 rock samples from eight prospects. The company diamond

drilled 10 holes on the **Venus** and **Mars** prospects for a total of 1875 m; continuous sampling for the entire length of each hole resulted in 1324 core samples. The best drill results of the season came from the Venus zone where 9.67 g/t Au over 38.70 m was intersected (Table 6).

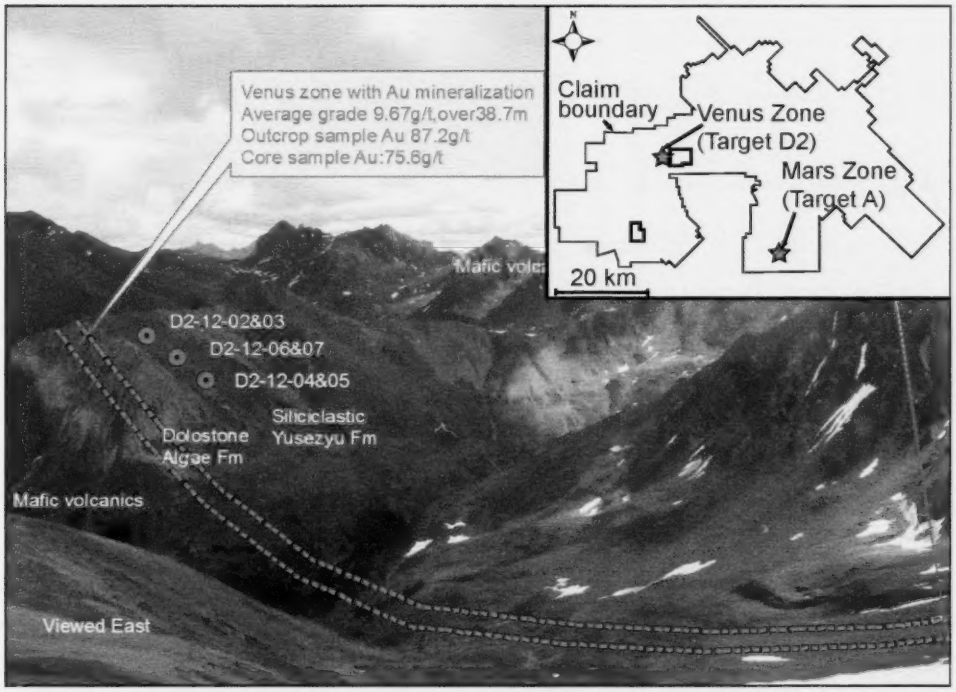

Figure 12. *Looking east towards the Venus Zone on Anthill Resources Ltd. Einarson property (photo credit: Anthill Resources Ltd.). Inset claim map of prospects drilled in 2012 on the Einarson property (modified from Anthill Resources Ltd. February property map).*

Table 6. *Significant intercepts from drilling at the Einarson property (modified from Anthill Resources' corporate presentation, December 10, 2012). *The reported intersections are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection
A1-12-01	Mars Zone	81.0	0.57 g/t Au over 21.16 m
and		151.7	0.32 g/t Au over 25.94 m
D2-12-05	Venus Zone	41.5	9.67 g/t Au over 38.70 m
including		49.3	30.54 g/t Au over 6.35 m

Strategic Metals (www.strategicmetalsltd.com) spent approximately $5 million exploring its claims adjoining the south side of ATAC Resources' Conrad and Osiris occurrences. Carlin-style mineralization was the focus of exploration on all of the claims of their **Midas Touch** project. Strategic Metals drilled more than 7000 m on the **Crag East** and **South** zones (Yukon MINFILE numbers pending), the **Trent** zone (Yukon 106C 073A, B, C, E), and the **Scarlet East** option (Yukon MINFILE numbers

pending). An arsenic soil anomaly of greater than 200 ppm As, greater than 2000 m long and 1000 m wide was defined on the Crag East claims (Fig. 13). Drilling at the Trent and Crag South zones intercepted minor gold mineralization (Table 7); no economic gold grades were intercepted on the Scarlet East property which was optioned from Rackla Metals Inc.

Figure 13. *Trench sample of realgar and orpiment in silty limestone, from the Malbec zone of the Crag East property (photo credit: Strategic Metals).*

Table 7. *Significant diamond drill intercepts from Strategic Metals' Midas Touch project (modified from Strategic Metals' September 5, 2012 News Release). *The reported intersections are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection
C-12-14	Trent	514.2	0.4 g/t Au over 7.04 m
C-12-20	Crag South	41.8	0.25 g/t Au over 6.09 m

Cantex Mine Development (www.cantex.ca) was active in Yukon in 2012, with a budget of approximately $1.2 million. They staked 8 claim blocks totaling 1380 claims and collected 1392 geochemical samples for processing using proprietary heavy mineral methods. Cantex also briefly prospected one claim block and discovered massive realgar in float (Fig. 14); they were unable to locate the source but it possibly comes from one of their claim blocks.

Figure 14. *Massive realgar float boulder from Cantex Mine Development Corporation claims in Selwyn basin (photo credit: Cantex Mine Development Corp.).*

Colorado Resources (www.coloradoresources.com) collected over 5000 soil samples and 700 rock samples, and completed detailed geologic mapping over a 70 km² area. They followed up and further defined numerous geochemical anomalies identified during the 2011 exploration season on their 360 km² **Oro** property. The Oro Main zone is the site of an 800 by 4000 m Ag, As, Sb, Tl soil anomaly and includes several subzones: the J.O., Saddle, Canol zones, and the historic Brick-Neve occurrence. The Brick-Neve is a drilled prospect consisting of

gold-quartz veins, realgar, and stibnite hosted in clay-altered quartz-porphyry dykes (Yukon MINFILE 105O 042). Other zones on the property include the Golden Ridge-Golden Hinge, Limey Ridge, Twin, and Area 51, all of which have multi-element soil anomalies greater than one kilometre long.

In December 2011, Radius Gold Inc. spun out several of its properties, including **Scarlet West** (Yukon MINFILE 106C 065), as the core assets of a new company called Rackla Metals Inc. (www.racklametals.com). In 2012, Rackla Metals exploration consisted of extending soil sample coverage, rock sampling, prospecting, and geological mapping of anomalous zones identified in 2011. A total of 2399 soil samples and 95 rock samples were collected from 5 mineralized prospects (Fig. 15).

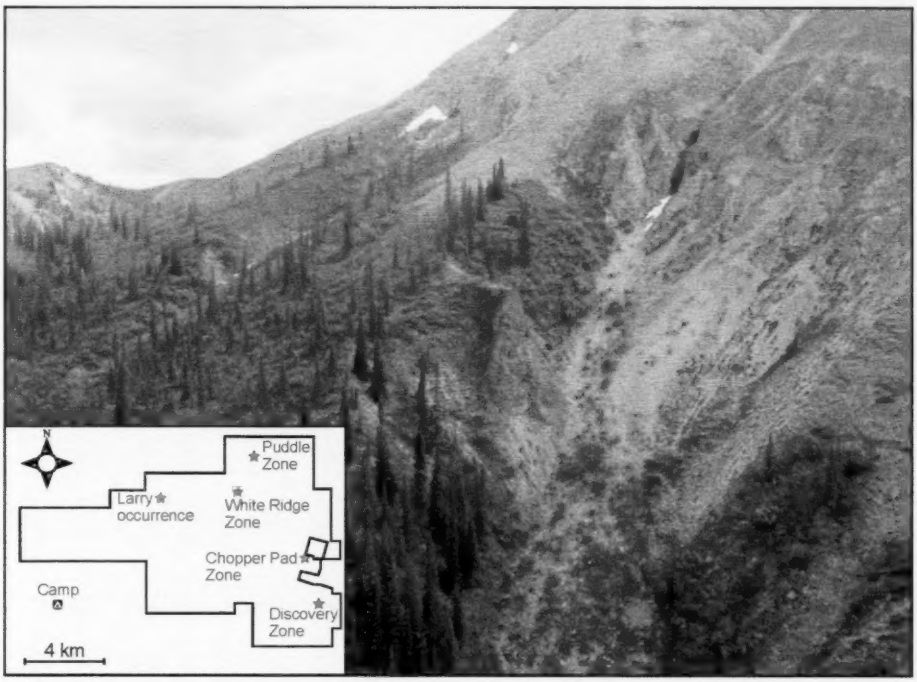

Figure 15. *Gossans from the Larry occurrence on Rackla Metals Inc. Scarlet West property (photo credit: Rackla Metals). Inset claim map of the five occurrences worked in 2012 (modified from September 3, 2012 property map provided by Rackla Metals).*

Intrusion-related gold

Victoria Gold Corp. (www.vitgoldcorp.com) focused its efforts on advancing the **Eagle** gold deposit through the mine permitting process and proving up higher grade, near-surface parts of the Eagle deposit (Yukon MINFILE 106D 025; Fig. 16). They also drilled 11 diamond drill holes on the **Olive** target (Table 8) and signed an Access and Exploration Agreement on Na-Cho Nyak Dun Category B Lands adjacent to their Dublin Gulch Project. Victoria conducted reconnaissance soil sampling and geologic mapping on these claims late in the season. Exploration expenditures for Victoria Gold were approximately $6 million.

Figure 16. *Sheeted quartz veins within granodiorite at Victoria Gold Corp.'s Eagle deposit.*

Table 8. *Significant drilling intercepts from the Dublin Gulch property (modified from Victoria Gold's October 29, 2012 News Release). *Reported widths are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
DG12-529C	Olive	84.0	2.6 g/t Au over 10.11 m
including		87.9	8.1 g/t Au over 1.43 m
DG12-530C	Olive	124.6	3.1 g/t Au over 6.40 m

Table 9. *Significant intercepts from reverse circulation (RC) and diamond drilling (BC) at the Brewery Creek property (modified from Golden Predator's July 10, 19 and 26, October 4 and 11, and November 5, 2012 News Releases). *Reported widths are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
RC12-2523	Lone Star	166.1	2.24 g/t Au over 21.3 m
including		166.1	3.63 g/t Au over 12.2 m
RC12-2499	Classic	surface	0.34 g/t Au over 140.2 m
BC12-451	West Big Rock	33.0	1.55 g/t Au over 25.5 m
BC12-452	Moosehead	15.9	1.22 g/t Au over 59.2 m
including		32.1	3.23 g/t Au over 9.7 m
BC12-418	Bohemian	35.0	3.27 g/t Au over 33.0 m
including		49.0	6.29 g/t Au over 14.0 m
RC12-2471	Lower Fosters	3.1	1.86 g/t Au over 29.0 m
and		33.5	4.83 g/t Au over 7.6 m

Golden Predator Corp. (www.goldenpredator.com) was also focused on permitting, and spent 2012 advancing the previously producing **Brewery Creek** deposits (Yukon MINFILE 116B 160) towards production again. Golden Predator continued to have exploration success with significant intercepts in the **Classic**, **West Big Rock**, **Moosehead**, **Bohemian**, and **Lower Fosters** zones (Table 9; Fig. 17). They also announced the discovery of a new zone of mineralization, the **Lone Star** zone, which is similar to the Classic zone and consists of sheeted veins in a multi-phased syenitic intrusion. The exploration budget for Brewery Creek was approximately $5 million, funding over 22000 m of diamond drilling and nearly 10000 m of reverse circulation drilling.

Figure 17. *Looking southwest towards the heap leach pad at Brewery Creek (photo credit: Golden Predator Corp.).*

The **Ida Oro** property (Yukon MINFILE 116A 027) was again the main drill project in 2012 for Ryan Gold Corp. (www.ryangold.com). The property, which lies 85 km east of Dawson City, underwent 7525 m of diamond drilling in 28 holes and had an exploration budget of approximately $5 million. Drilling in 2012 occurred in three zones on the property: **IO North** (16 holes), **Europa** (9 holes), and **Ganymede** (3 holes). IO12-026 from the IO North zone returned the best results of 50.72 m of 2.04 g/t Au (Table 10). Gold mineralization was found in porphyry-style vein sets in intrusive rock in IO North, which has broadened the scope of exploration beyond the metasediments, originally considered the sole host for gold mineralization.

Table 10. *Significant drill intercepts from the Ida Oro property (modified from Ryan Gold's September 11 and October 31, 2012 News Releases). *All interval widths are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
IO12-026	IO North	140.7	2.04 g/t Au over 50.72 m
including		140.7	7.01 g/t Au over 8.77 m
IO12-016	Europa	72.6	2.31 g/t Au over 8.97 m
IO12-028	Europa	22.3	2.26 g/t Au over 18.78 m
including		23.5	3.32 g/t Au over 6.30 m

Goldstrike Resources (www.goldstrikeresources.com) conducted reconnaissance property evaluations on greater than 25 claim blocks and reduced its property holdings to approximately eight properties, including its three flagship properties: **Plateau South**, **Lucky Strike**, and **Summit** (Yukon MINFILE numbers pending). A grab sample of a silicified felsic volcanic rock from the VG zone of the Plateau South

property assayed up to 529.86 g/t Au. Goldstrike drilled 3 scout holes for a total of 211.55 m in the Goldrush zone at Plateau North and 2 scout holes totaling 165.2 m in the Goldstack zone at Plateau South. One hole in the Goldstack zone intersected 8.9 m of silicified breccia (true width), grading 0.7 g/t Au.

In southeastern Yukon, Aben Resources (www.abenresources.com) explored its **Justin property** (Yukon MINFILE 105H 035) with a 9 hole, 1994 m diamond drill program on the **POW** zone (Table 11). The major advance for this year's work was the recognition of an intrusion-related gold system at the POW zone, which remains open in all directions and mineralization has been traced along surface for approximately 450 m west-east by 200 m north-south (Fig. 18). The contact zone of a shallowly buried intrusion and the surrounding carbonate country rocks is the primary drill target as it is an important control on the skarn-replacement mineralization observed in the first few holes at the POW zone.

Table 11. *Significant intercepts from drilling at the Justin property (modified from Aben Resources' August 16, September 25, and November 8, 2012 News Releases). *Results are down-hole interval lengths Intercepts were calculated using a 0.1 g/t Au cut off.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
JN12011	POW	131.6	1.49 g/t Au over 46.4 m
including		145.5	3.08 g/t Au over 15.0 m
also including		147.5	3.88 g/t Au over 9.2 m
JN12016	POW	102.0	4.12 g/t Au over 5.3 m
JN12018	POW	197.6	0.73 g/t Au over 88.5 m

Figure 18. *Aben Resources Ltd.'s Justin property, looking southeast from the POW zone up-valley towards the Kangas zone. Dashed white line is approximate boundary of skarn and sheeted vein mineralization in the POW zone as exposed in outcrop.*

New Dimension Resources (www.newdimensionresources.com) worked on the **Liam**, **Lance**, and **Lisa** properties (Yukon MINFILE numbers pending), of their **Lansing** project. Follow-up soil sampling was conducted on the Liam where three parallel, southeast-trending, linear anomalies (South Trend, Central Trend, and North Trend) were discovered, and on the Lance where grid soil samples returned elevated gold values within a broad arsenic anomaly. These elevated gold-in-soil values may represent arsenopyrite-bearing, auriferous quartz veins hosted within hornfelsed metasediments which are found elsewhere on the property. Exploration on the Lisa included contour soil sampling and prospecting to follow-up anomalous arsenic, gold, antimony, and bismuth soil geochemistry from 2011 work, and to better test a known copper-bearing skarn horizon. Several narrow, intrusion-hosted, arsenopyrite-bearing quartz veins were identified and yielded gold values between 0.36 and 1.10 g/t.

Northern Tiger Resources (www.northern-tiger.com) continued drilling at their **3Ace** (Yukon MINFILE numbers pending) property. They spent $1.2 million and drilled 1711 m in 15 holes in 2012. Exploration was focused on the **Main** and **Sleeping Giant** zones (Fig. 19), and four scout holes tested other prospects. Results include 1.5 g/t Au over 45.4 m in the Main Zone (DDH 3A-12-36) and 0.6 g/t Au over 32.4 m in the first drill hole into the Kaiser Trend – DDH 3AKT-12-01 (Table 12). Northern Tiger Resources also conducted their first full field season on the **Sprogge** property (Sugar Bowl; Yukon MINFILE 105H 103) which adjoins the eastern edge of their 3Ace property. Trenching at the Meadow zone returned assays of 8.5 g/t Au over 6.8 m, including 40.5 g/t Au over 1.0 m. Other zones identified include **Ridge East and West** zones which are both brittle/ductile faults and shears with channel sample results up to 7.6 g/t Au over 2.5 m.

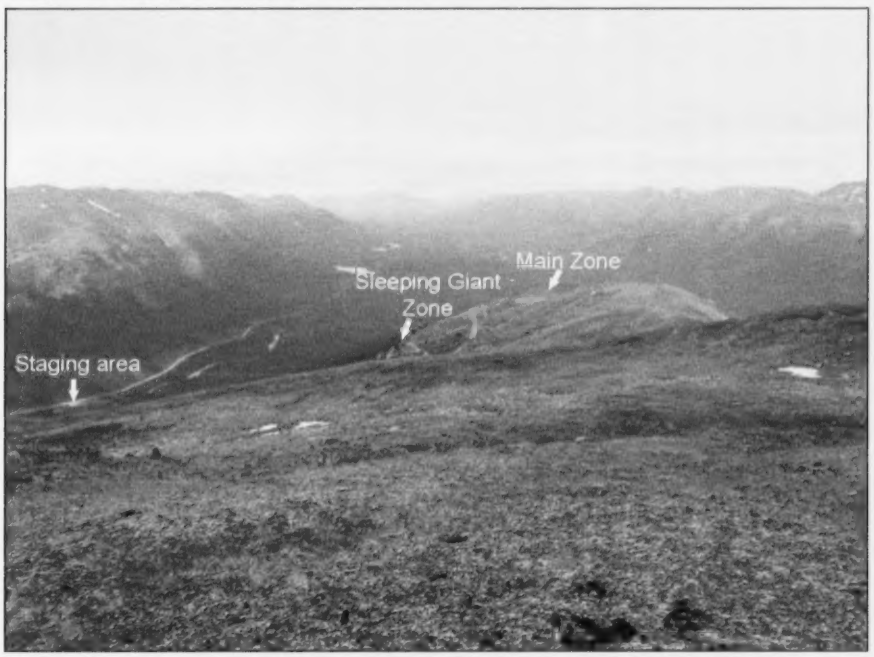

Figure 19. *Looking south along main ridge of Northern Tiger Resources Inc. 3Ace property. Little Hyland River along the Nahanni Range Road on the left of the photo.*

Table 12. *Significant diamond drill intercepts from the 3Ace property (modified from Northern Tiger Resources' October 31, 2012 News Release). *Reported intersections are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
3A-12-36	Main	192.7	1.5 g/t Au over 45.4 m
including		213.4	13.0 g/t Au over 1.8 m
3A-12-38	Main	135.4	3.6 g/t Au over 8.6 m
3ASG-12-07	Sleeping Giant	7.0	3.3 g/t Au over 7.3 m
3AKT-12-01	Kaiser Trend	74.6	0.6 g/t Au over 32.4 m

The 3Ace mineralization was discovered by Watson Lake prospector Alex McMillan in 2010. He originally staked the area in 1999. In 2012, he was awarded the Yukon Prospectors' Association Prospector of the Year in recognition of his perseverance and success in prospecting in this area.

Several other companies were exploring southeastern Yukon for orogenic gold in 2012: Commander Resources (www.commanderresources.com) mapped and prospected its **Glenmorangie** property (Ricardo; Yukon MINFILE 105H 057) and Ryan Gold (www.ryangold.com) continued soil sampling and geological mapping on its **Cantung** project (Yukon MINFILE numbers pending).

Precious metals – silver

Vein/breccia

Since being spun off from Strategic Metals in the summer of 2011, Silver Range Resources (www.silverrangeresources.com) has made considerable headway on its **Silver Range** property near Faro. They completed an inferred resource calculation for the bulk tonnage **Keg Main Zone** (Keglovic; Yukon MINFILE 105K 078; Fig. 20) in November 2012 (Table 13). They also continued property-wide exploration and drilled 7 of the 23 additional mineralized zones including the **Hammer**, **Risby**, and **Snap** zones (Yukon MINFILE numbers pending). The Hammer zone appears to be a large high-grade epithermal system, and three subparallel, silver-rich veins were traced for strike lengths of up to 600 m, and through a vertical range of 280 m. All veins are open for extension along strike and to depth. Preliminary drilling at the Snap Zone identified bulk tonnage potential similar in tenor to the Keg Main Zone. A new high-grade drilling discovery was made at the **Owl Southwest** zone, with bonanza-grades of 5370 g/t Ag over 0.34 m in DDH OSW-12-001 (Table 14).

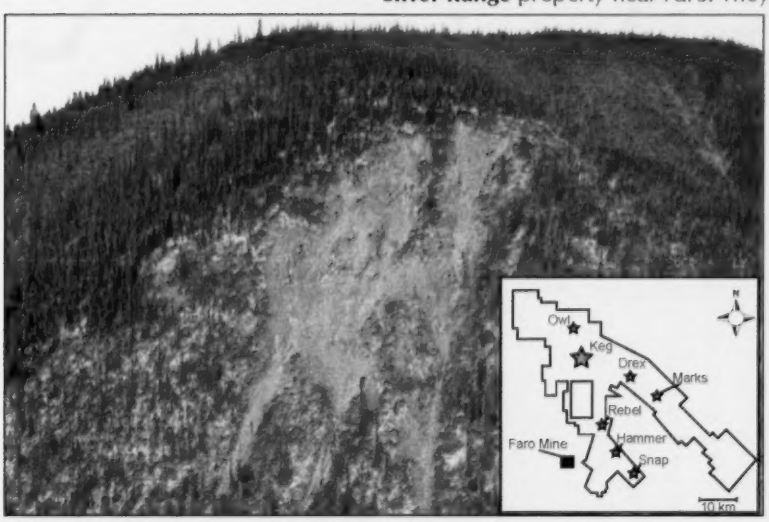

Figure 20. *Surface expression of the east end of the Keg Main zone deposit on Silver Range Resources Ltd.'s Silver Range property (photo credit: Silver Range Resources Ltd.). Inset claim map of the Silver Range property indicating the seven zones drilled in 2012 (modified from Silver Range's 2012 Keg geology map).*

Table 13. *Resource on Silver Range Resources' Keg Main Zone deposit (modified from Silver Range's November 20, 2012 News Release). *Cut-off grade of 16 g/t Ag used.*

Area	Classification	Tonnes (Mt)	Ag (g/t)	Pb (%)	Zn (%)	Cu (%)	Sn (ppm)	In (ppm)	Contained Ag (oz)
Keg Main Zone	Inferred	40	30.3	0.3	0.8	0.2	265.7	5.77	38,668,984

Table 14. *Significant intercepts from diamond drilling at the Silver Range project (modified from Silver Range Resources' October 25, 2012 News Release). *All interval widths are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
HAM-12-011	Hammer	128.7	1052.77 g/t Ag, 0.64% Pb and 0.43% Zn over 1.30 m
including		128.7	1590 g/t Ag, 1.13% Pb and 0.47% Zn over 0.70 m
HAM-12-017	Hammer	185.2	1509.23 g/t Ag, 2.93% Pb and 1.66% Zn over 1.63 m
including		186.3	4620 g/t Ag, 8.99% Pb and 4.84% Zn over 0.53 m
OSW-12-001	Owl SW	25.7	5370 g/t Ag, 0.52 g/t Au, 26.1% Pb and 0.05% Zn over 0.34 m
SNP-12-006	Snap	21.6	27.65 g/t Ag, 0.02 g/t Au, 0.75% Pb and 1.46% Zn over 29.85 m
including		21.6	219.93 g/t Ag, 0.03 g/t Au, 2.74% Pb and 8.61% Zn over 1.70 m
RBY-12-001	Risby	169.0	58.38 g/t Ag, 0.19 g/t Au, 0.13% Pb and 0.01% Zn over 1.70 m

Inform Resources collected 1072 soil samples and 80 rock samples from their **La Liga** property (Yukon MINFILE numbers pending) near Faro. They worked on three zones: **Red Devil**, a 2000 by 500 m Ag+Pb soil anomaly; **Cottagers**, a Ag+Pb+Zn soil anomaly with Ag in soil values up to 29.3 g/t; and **Old Trafford**, a prospect from which grab samples returned assay results of up to 213 g/t Ag and >1% Pb.

Base metals – lead + zinc

Sedimentary exhalative

The Selwyn-Chihong joint venture between Selwyn Resources Ltd. (www.selwynresources.com) and Canada Chihong Mining was busy early in the year drilling its extensive **Selwyn** Zn-Pb SEDEX property (Howards Pass; Yukon MINFILE 105I 12, 37, 38). The property is located 75 km southeast of MacMillan Pass and straddles the Yukon/Northwest Territories border. Updated resource estimates were announced in 2012 for the **XY West** and **Don** deposits (Table 15). Additional drilling on the XY Central and Don Connector was also carried out (Table 16). The feasibility study

Table 15. *Resource on the XY West deposit (Kirkham, 2012a) and Don deposit, (Kirkham, 2012b), Selwyn Project, Selwyn Resources. *cut-off grade of 2.0% Zn.*

Deposit	Classification	Tonnes* (Mt)	Zn (%)	Pb (%)
Don	indicated	41.8	5.35	1.87
	inferred	11.0	5.07	1.57
XY West	inferred	12.8	4.42	1.40

begun in 2010 has undergone several changes and an updated version is expected to be completed by March 2013. The report is based on a 3500 tonne-per-day underground mining rate of higher grade material from the XY Central and Don deposits. Upon completion of the feasibility study, Canada Chihong Mining will have vested a 50% interest in the joint venture.

Table 16. *Significant intercepts from drilling at the Selwyn project (modified from Selwyn Resources' September 6, 19, and 29, 2011 News Releases). *Intercepts are true thickness.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
DON-233	Don Connector	716.8	6.09% Zn and 1.87% Pb over 29.20 m
including		722.5	8.95% Zn and 2.62% Pb over 10.87 m
DON-234	Don Connector	714.4	5.85% Zn and 2.50% Pb over 36.38 m
DON-236	Don Connector	653.0	6.51% Zn and 1.92% Pb over 27.25 m
XYC-297	XY Central	324.0	7.57% Zn and 2.65% Pb over 45.08 m

Vein/breccia

Manson Creek Resources (www.manson.ca) conducted an Induced Polarization (IP) survey on its **Tell** property (Yukon MINFILE 106C 091), 100 km east-northeast of Keno City. The IP survey identified a large zone of high chargeability and low resistivity, interpreted to represent sulfides and a hydrothermal alteration zone that correlate well with the mineralized gossans at surface.

Rare earth elements

Endurance Gold Corp. (www.endurancegold.com) conducted a prospecting program at its **Bandito** (Dunn; Yukon MINFILE 095C 051) Ni-Cu-REE project in southeast Yukon. Prospecting of 2011 rare earth and niobium (REE+Nb) soil anomalies resulted in the discovery of several new nepheline syenite-hosted REE+Nb prospects. Highlights of float samples include: highly metasomatized syenite - 3.491% total rare earth oxides+yttrium (TREO+Y) with a 76.7% heavy rare earth oxide (HREO) ratio, 0.887% Nb_2O_5, 43.2% ZrO_2 and 1.978% TREO+Y with 74.9% HREO ratio, 0.958% Nb_2O_5, 43.6% ZrO_2. The mineralized prospects in syenite, discovered in 2012, are distributed over a 2 km² area that is largely underlain by the Proterozoic-aged Pool Creek nepheline syenite which has been hematite altered and sodium metasomatized.

Tungsten

North American Tungsten's (www.northamericantungsten.com) **Mactung** deposit (Yukon MINFILE 105O 002) is in the mine-permitting stage and received a draft screening report for the project from the Yukon Environmental and Socioeconomic Assessment Board. The feasibility study for the high-grade tungsten skarn deposit outlined a 2000 tonne per day underground operation and an 11 year mine life; there is potential to extend the life of the mine as an open-pit operation. The Mactung property is situated at MacMillan Pass on the NWT/Yukon border in east-central Yukon. The company has been carrying out environmental, engineering and geotechnical studies in support of permitting.

FINLAYSON LAKE DISTRICT

Base metals – copper + zinc

Volcanogenic massive sulphide

Redtail Metals Corp. (www.copper-ridge.com) signed an Option Agreement with Kaska Minerals Corporation to acquire the **R15** project (Myda; Yukon MINFILE 105G 071) located in the Finlayson Lake District approximately 120 km south of Ross River, Yukon. The R15 project is adjacent to, and along strike with, Teck's GP4F deposit (historical resource estimate of 1.5 million tonnes of 6.4% Zn, 3.1% Pb, 90 g/t Ag, 2 g/t Au) and may represent the continuation of the GP4F horizon along strike. Five diamond drill holes were completed by Redtail Metals in 2012 for a total of 686 m; all 5 holes intersected significant massive sulphide mineralization (Table 17).

Table 17. *Significant intercepts from drilling at Redtail Metals' R15 project (modified from Redtail Metals' November 15, 2012 News Release). *All interval widths are drilled thicknesses.*

Drillhole	Zone/Area	Depth of intersection (m)	Intersection*
R12-09	Main Zone	101.7	7.68% Zn, 3.05% Pb, 0.28% Cu, 30.21 g/t Ag and 0.06 g/t Au over 6.99 m
R12-11	Main Zone	100.1	8.49% Zn, 3.94% Pb, 0.24% Cu, 34.70 g/t Ag and 0.06 g/t Au over 8.25 m
R12-10	Main Zone	154.2	6.31% Zn, 2.88% Pb, 0.30% Cu, 48.64 g/t Ag and 0.12 g/t Au over 8.25 m

Wolverine Minerals Corp. (www.wolverineminerals.ca) worked on its properties in the Finlayson Lake District in 2012. The **Vivi** (Yukon MINFILE numbers pending) property covers numerous east- trending quartz veins that are associated with two thrust fault-bounded wedges of listwanite-altered ultramafic rocks. The company completed 27 reverse circulation drillholes (1562 m) in 2012 (Table 18). Drilling targeted gold mineralization within a previously unexplored zone measuring 800 m by over 550 m and containing highly anomalous gold-in-soil geochemistry (200 to 1320 ppb Au).

Table 18. *Significant intercepts from drilling at Wolverine Minerals' Vivi project (modified from Wolverine Minerals' August 27, 2012 News Release). *All interval widths are drilled thicknesses.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
RCH-12-02	Vivi	24.38	0.355 g/t Au over 12.19 m
RCH-12-05	Vivi	16.76	0.803 g/t Au over 1.52 m
RCH-12-18	Vivi	48.77	1.209 g/t Au over 3.05 m
RCH-12-19	Vivi	54.86	0.743 g/t Au over 4.57 m
RCH-12-22	Vivi	9.14	1.4 g/t Au over 1.52 m

DAWSON RANGE (WHITE GOLD AREA)

Precious metals – gold

Vein/breccia

Kaminak Gold Corp. (www.kaminak.com) had another big exploration season on its **Coffee** property, 130 km south of Dawson City (Yukon MINFILE 115J 110; Fig. 21). Drilling from March to October included a total of 125 diamond drill holes (29630 m) and 223 reverse circulation holes (39455 m; Table 19). Multiple late

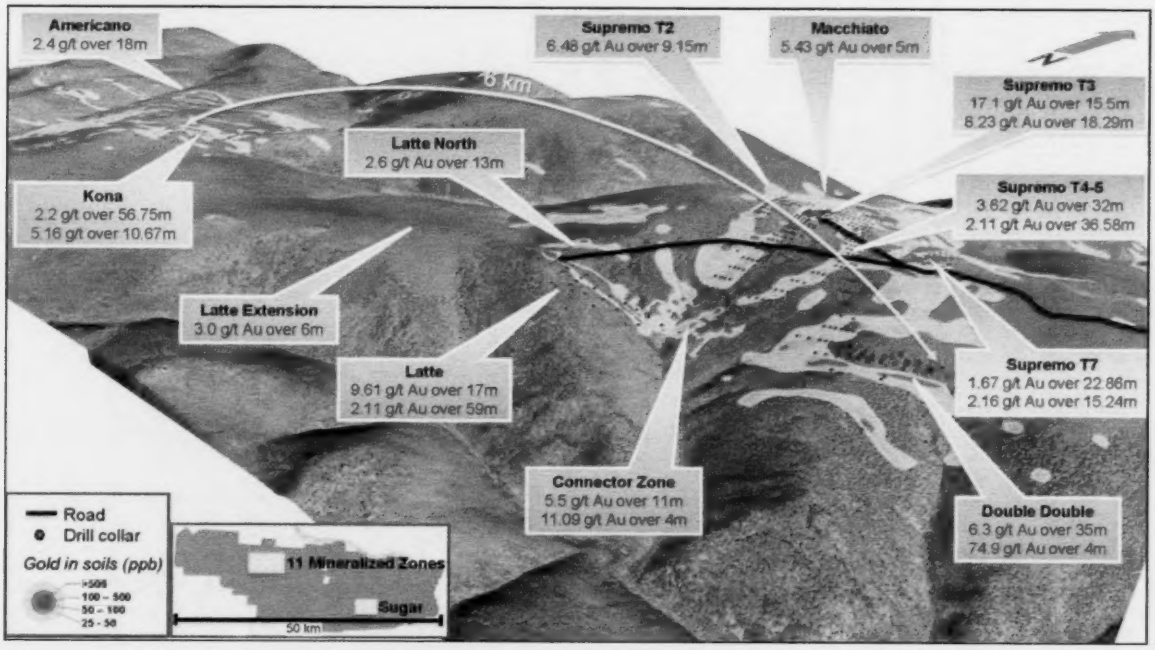

Figure 21. *Mineralized zones of the Coffee property. Image courtesy of Kaminak Gold Corp.*

Table 19. *Significant intercepts from drilling at the Coffee gold property (modified from Kaminak Gold Corp June 4, July 9, and September 15, 2012 News Releases). *True width estimated at 2/3 down-hole length.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
CFD-215	Double Double	64	34.95 g/t Au over 4.5 m
and		71	39.35 g/t Au over 1.5 m
CFD-183	Supremo T3	68	3.98 g/t Au over 2 m
and		144	1.54 g/t Au over 8 m
and		164	19.14 g/t Au over 6 m
and		173	1.74 g/t Au over 2 m
CFD-199	Supremo T3	158	12.53 g/t Au over 13 m
CFD-210	Supremo T3	31	15.52 g/t Au over 11 m
CFR-252	Supremo T3	183	14.51 g/t Au over 18.29 m
CFR-200	Supremo T4-5	81	2.94 g/t Au over 32.01 m
and		123	3.19 g/t Au over 6.1 m
CFD-261	Supremo T4/5 undercuts	168	8.74 g/t Au over 3.5 m
and		179.5	4.18 g/t Au over 4.5 m
and		204.5	1.14 g/t Au over 12.5 m
and		233.5	1.88 g/t Au over 10 m
and		250	10.18 g/t Au over 3.5 m
and		304.5	4.33 g/t Au over 24 m
SGD-2	Sugar	180	1.34 g/t Au over 19.2 m
and		207	1.26 g/t Au over 9.3 m

structures crosscutting various lithologies host the gold. Mineralization is associated with brecciation, silicification, oxidization of pyrite, and sericite alteration. Drilling focused on connecting near-surface and well oxidized gold zones along trend, and untested gold-in-soil anomalies. Deep drilling was undertaken in select zones to extend mineralization at depth. The 2012 exploration program was successful in connecting the **Supremo T3 and T4** gold zones and expanding the strike length of these structures to connect to the **Latte** gold zone. The **Sugar** zone (Canopus; Yukon MINFILE 115J 062) grid soil anomaly was also drill-tested for the first time in June 2012. Initial metallurgical testing on samples from the Supremo and Latte zones has been positive with 90.4% gold recovery after 80 days in simulated heap leach tests. Bottle-roll tests recovered 96.3% gold for carbon-in-leach and 98.5% gold for carbon-in-pulp testing. In December 2012, Kaminak released its maiden NI 43-101 compliant resource of 3,236,000 oz (Table 20) gold at a base case cut-off of 0.5 g/t Au for oxide and transitional material and a 1.0 g/t Au cut-off for sulphide material.

Table 20. *Resource on Kaminak Gold Corp.'s Coffee property (modified from Kaminak's December 13, 2012 News Release).*Cut-off grade of 0.5 g/t Au used.*

Zone	**Oxide**			**Transition**			**Sulphide**		
Cut-off Grade (g/t Au)	Tonnes (000)	Gold Grade (g/t Au)	Total Gold (Oz)	Tonnes (000)	Gold Grade (g/t Au)	Total Gold (Oz)	Tonnes	Gold Grade (g/t Au)	Total Gold (Oz)
SUPREMO									
1	19 860	2	1,027,000	16 545	1	704,000	1660	1	76,000
1	10 648	2	816,000	7774	2	505,000	828	2	58,000
LATTE									
1	6054	1	288,000	11 328	1	537,000	6885	1	326,000
1	3501	2	228,000	6364	2	421,000	3771	2	254,000
DOUBLE DOUBLE									
1	1175	3	120,000	1966	2	120,000	311	2	16,000
1	839	4	112,000	1111	3	100,000	188	2	13,000
KONA									
1	989	1	47,000	1473	1	57,000	605	1	21,000
1	565	2	37,000	687	2	39,000	244	2	12,000
ALL ZONES COMBINED									
1	28 078	2	1,481,000	31 313	1	1,418,000	9461	1	438,000
1	15 553	2	1,193,000	15 936	2	1,065,000	5030	2	337,000

Independence Gold Corp. (www.ingold.ca) performed an extensive sampling program at its **Snowcap** project which adjoins the western margin of Kaminak Gold's Coffee property and consists of numerous claim blocks, including **Boulevard** (Keg & Boulevard, Yukon MINFILE 115J 050 & 052), **Solitude** (Hanna; Yukon MINFILE 048), YGC (Yukon MINFILE numbers pending), and **Solo** (Yukon MINFILE numbers pending). On the **YGC** property, the company discovered the **Denali** gold zone, a 700-m-long gold-in-soil anomaly which returned anomalous gold values ranging from 75 to 4530 ppb.

Pacific Ridge Exploration Ltd. (www.pacificridgeexploration.com) continued exploring its **Mariposa** (Yukon MINFILE 115O 075) property. The company spent $1.9 million on a program that included 2450 m of diamond drilling in 14 holes, roughly 1850 m of mechanical trenching, extensive soil and silt sampling, ground magnetic surveys, and prospecting. Drilling was focused at the **Skookum Main** zone (Fig. 22), where 8 out of 11 holes intersected gold mineralization, and at the **Big Alex** zone (Yukon MINFILE 115O 178), which was drilled for the first time in 2012 and intersected gold in all three holes (Table 21). The 2012 drill program confirmed gold mineralization along a northeast-trending structure associated with hydrothermal alteration.

Figure 22. *Patrick Sack and Pacific Ridge Exploration geologist Janice Fingler examine drill core at the Mariposa property.*

Table 21. *Significant intercepts from drilling at the Mariposa gold property (modified from Pacific Ridge Exploration Ltd.'s October 16, 2012 News Release). *The reported intersections are drilled thicknesses.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
12MP-01	Skookum Main	17.9	3.6 g/t Au over 0.4 m
and		31.8	50.4 g/t Au over 0.3 m
and		87.1	22.6 g/t Au over 0.5 m
and		90.0	2.5 g/t Au over 1.2 m
and		109.2	0.5 g/t Au over 2.2 m
and		144.8	1.5 g/t Au over 1.4 m
12MP-06	Skookum Main	68.8	1.3 g/t Au over 6.5 m
and		92.4	2.6 g/t Au over 2 m
and		115.4	3.9 g/t Au over 1 m
and		121.3	1 g/t Au over 1.4 m

Ethos Gold Corp. (www.ethosgold.com) followed up on its high-grade trench pit sample from 2011 with extensive reverse circulation drilling at the **Betty** property near White Gold. The company prospected and sampled soil grids on the property (8700 soil samples; Empire, Yukon MINFILE 115J 069; Marquerite, Yukon MINFILE 115J 070; Brewster, Yukon MINFILE 115J 071; and Mascot, Yukon MINFILE 115J 074) and drilled 61 RC holes (Sheridan, Yukon MINFILE 115J 018). Gold grades are associated with limonite and clay alteration and arsenopyrite mineralization, with or without quartz veining and silicification. Positive drill results include 41.1 m of 2.6 g/t Au and 107 g/t Ag in drillhole BETRE12-022 (Table 22).

Table 22. *Significant intercepts from drilling at the Betty gold property (modified from Ethos Gold Corp.'s June 26, 2012 News Release). *True width is unknown for all intercepts.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
BETR12-003	Bond	54.8	0.6 g/t Au and 19 g/t Ag over 16.8 m
BETR12-007	Mercedes	55.5	1.5 g/t Au over 21.3 m
BETR12-012	Perrault	27.1	29.8 g/t Au and 27 g/t Ag over 3.1 m
BETR12-022	Marshall	16.9	2.6 g/t Au and 107 g/t Ag over 41.1 m
including		25.9	7.1 g/t Au and 209 g/t Ag over 13.7 m

A new discovery in the White Gold District caused excitement in 2012. Comstock Metals Ltd. (www.comstock-metals.com) discovered visible gold associated with oxidized pyrite in a quartz vein at its **QV** claims (Yukon MINFILE numbers pending). Subsequent trenching targeted an area of gold and pathfinder element soil anomalies coincident with quartz vein float containing grains of visible gold. The company drilled 8 diamond drillholes for a total of 1334 m (Table 23), testing the gold mineralization found in trenches. Drillhole QV12-004 intersected 2.34 g/t Au over 89.85 m from 43.75 m depth. Drilling intersected quartz-sericite-carbonate altered gneiss and feldspar porphyry dykes containing quartz vein stockwork, breccia, disseminated and vein controlled pyrite, and visible gold (Fig. 23).

Table 23. *Significant intercepts from drilling at the QV gold property (modified from Comstock Metals Ltd. October 22 and November 26, 2012 News Releases). *The reported intersections are drilled thicknesses.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
QV12-008	VG	89.5	2.03 g/t Au over 30.45 m
including		94.0	3.84 g/t Au over 6 m
QV12-006	VG	73.80	1.46 g/t Au over 62 m
including		101.50	3.76 g/t Au over 14.93 m
QV12-004	VG	43.75	2.34 g/t Au over 89.85 m
including		43.75	9.98 g/t Au over 3.35 m
and		72.0	3.04 g/t Au over 45.5 m
including		75.1	4.89 g/t Au over 12.9 m

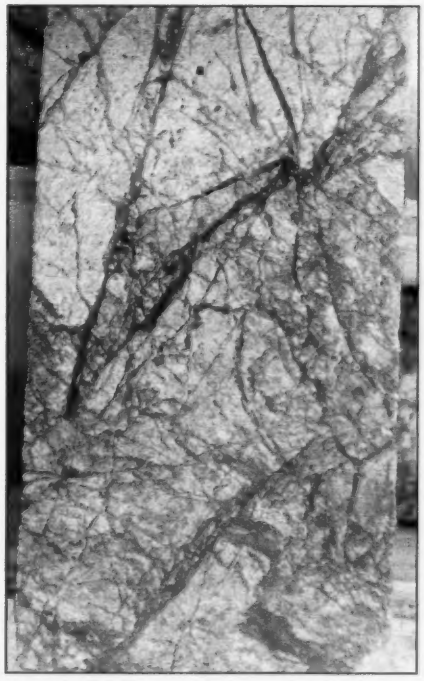

Figure 23. *Brecciated drill core from Comstock Metals' QV property. This sample graded greater than 4 g/t Au. Photo courtesy of Comstock Metals Ltd.*

Taku Gold Corp. (www.takugold.com) worked its **Rosebute** property in the Klondike District, south of Dawson City. Taku Gold drilled 963 m of core in 4 holes. The drill program was designed to test gold-in-soil anomalies from 2011 sampling in the Northwestern part of the property (Yukon MINFILE numbers pending), and intersected gold values in three of four holes (Table 24). The company also drilled its **Sulphur** property, completing 7 holes for a total of 1033 m of diamond drill core (Table 25). The bulk of the drilling at Sulphur was in the northeast corner of the property (Lions area; Yukon MINFILE numbers pending), an area characterized by two northwest-trending geochemical anomalies.

Table 24. *Significant intercepts from drilling at the Rosebute gold property (modified from Taku Gold Corp.'s August 21, 2012 News Release). *The reported intersections are drilled thicknesses.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
RO12-01	Rosebute	23.4	0.952 g/t Au over 22.6 m
RO12-02	Rosebute	19	1.576 g/t Au over 1 m
RO12-04	Rosebute	66	0.884 g/t Au over 3 m

Table 25. *Significant intercepts from drilling at the Sulphur gold property (modified from Taku Gold Corp.'s August 14, 2012 News Release). *The reported intersections are drilled thicknesses.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
SU12-01	Lions	50	0.31 g/t Au over 2 m
SU12-02	Lions	58	0.12 g/t Au over 5 m
SU12-04	Lions	75	0.14 g/t Au over 2 m
SU12-06	Lions	56	0.14 g/t Au over 2 m
SU12-07	Blues	39	0.32 g/t Au over 3 m
and		50	0.19 g/t Au over 6 m
and		72	0.72 g/t Au over 1 m

Table 26. *Significant intercepts from drilling at the Ballarat gold property (modified from Stakeholder Gold Corp.'s September 4, 2012 News Release). *The reported intersections are drilled thicknesses.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
BA 12 01	Ballarat	55.6	0.95 g/t Au over 3.0 m
and		117.8	0.37 g/t Au over 2.2 m
and		137.6	0.76 g/t Au over 1.9 m
BA 12 02	Ballarat	6.0	0.74 g/t Au over 1.0 m
BA 12 03	Ballarat	44.9	1.71 g/t Au over 1.0 m
and		120.7	0.32 g/t Au over 1.9 m

Stakeholder Gold Corp. (www.stakeholdergold.com) completed a short program of 5 diamond drillholes for 753 m on its **Ballarat** gold property, 100 km south of Dawson City. The drilling tested 2 gold-in-soil trends with values up to 796 ppb Au in the southern anomaly and up to 188 ppb Au in the northern anomaly. Gold intersections were logged in three of the five holes (Table 26).

Klondike Gold Corp. (www.klondikegoldcorp.com) was active in 2012 exploring its **Lonestar** property (Fig. 24). Exploration in 2012 focused on low-grade near surface bulk tonnage targets and also high-grade vein mineralization.

Figure 24. *Boulder Lode open cut on Klondike Gold Corp.'s Lone Star property showing stacked quartz vein and channel sample flagging.*

Activities this season included data compilation, prospecting, geological mapping, geochemical sampling, trenching, and diamond drilling. Select samples were collected including a grab sample of 179 g/t Au and 78 g/t Ag from the **Nugget** zone (Robin Egg; Yukon MINFILE 115O 148). Drilling focused on the **Pioneer** zone (Lone Star; Yukon MINFILE 115O 072) and intersected 0.63 g/t Au and 1.65 g/t Ag over 11.6 m including a best sample of 2.10 g/t Au and 6.8 g/t Ag over 1.5 m. (Table 27).

Table 27. *Significant intercepts from drilling at the Lonestar gold project (modified from Klondike Gold Corp.'s September 5, 2012 News Release). *The reported intersections are drilled thicknesses.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
12DDH001	Pioneer	25.5	0.34 g/t Au over 17.0 m
12DDH002	Pioneer	20.4	0.63 g/t Au over 11.6 m
12DDH003	Pioneer	53	0.97 g/t Au over 4.5 m
12DDH004	Pioneer	90.5	1.43 g/t Au over 1.5 m

Ryan Gold (www.ryangold.com) explored its **Flume** (Yukon MINFILE 115N 110) property, located approximately 60 km southwest of Dawson City, with 9 diamond drillholes for a total of 2307 m (Table 28). The company is in the process of earning a 51% interest in the property from Bearing Resources Ltd. The property is underlain by metamorphic rocks of Yukon-Tanana terrane. A 2.5-km-long northwest-trending soil anomaly that is coincident with magnetic structural features runs through

the claim block and was the focus of the 2012 diamond drill program. Although sulphide mineralization was intersected in core, it was thought to be a late-stage overprinting event and not associated with gold.

Table 28. *Significant intercepts from drilling at the Flume gold project (modified from Ryan Gold Corp.'s November 6, 2012 News Release). *The reported intersections are drilled thicknesses.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
FL12-001	Flume	180	1 g/t Au over 1 m
FL12-003	Flume	82.3	1.42 g/t Au over 0.7 m
and		89.5	1.04 g/t Au over 0.8 m
and		92	2.25 g/t Au over 1 m
FL12-006	Flume	32	5.76 g/t Au over 2 m
FL12-007	Flume	67	1.11 g/t Au over 1.2 m
and		74.5	1.42 g/t Au over 0.8 m
and		185.5	1.57 g/t Au over 1.12 m
FL12-008	Flume	97.5	1.35 g/t Au over 2 m
FL12-009	Flume	49	0.74 g/t Au over 1 m

Wolverine Minerals Corp. (www.wolverineminerals.ca) drilled its **Dade** (Grizzly; Yukon MINFILE 115I 122) property in the Dawson Range. Phase 1 drilling consisted of 2043 m in 23 BTW-size diamond drill holes and 1426 m of reverse circulation in 24 holes (Table 29). The drilling tested a large fractured and altered zone, however, results did not warrant further work and the option was returned to the vendor.

Table 29. *Significant intercepts from drilling at the Dade gold prospect (modified from Wolverine Minerals Corp.'s August 8, 2012 News Release). *The reported intersections are drilled thicknesses.*

Drillhole	Depth of intersection (m)	Intersection*
DDH-12-02	0	0.33 g/t Au over 29.57 m
DDH-12-06	6.1	0.27 g/t Au over 13.12 m
DDH-12-11	42.34	0.47 g/t Au over 5.64 m
RCH-12-03	27.4	0.69 g/t Au over 9.18 m

White Pine Resources (www.whitepineresources.ca) explored its **Money** and **Tender** projects (Yukon MINFILE numbers pending) located in the White Gold District. At the Tender project, 28 rock, 126 soil, and 66 stream sediment samples were collected, a 50 m trench was excavated over a 1.2 g/t Au soil anomaly, and 2011 trenches were reclaimed. At the **Three Kings** target on the Tender property 2 rock, 20 soil, and four stream sediment samples were collected. Highlights of the 2012 program on the Money project include the outlining of the Twenty target where anomalous soil values of 475.1 and 44.4 ppb Au were discovered, and the extension of the north-northwesterly trending soil anomaly a further 1 km to the north at the Nickel target.

Metals Creek Resources (www.metalscreek.com) followed up on its **Squid** project (Yukon MINFILE numbers pending), located in the Matson Creek area. The 2012 soil results delineated a northwest-trending gold plus pathfinder element anomaly located on the Squid East claim block. Anomalous gold values ranging from 15 to 1086.5 ppb were associated with strong pathfinder element results which include Ag from below detection up to 78.5 ppm, Pb from 5.3 up to 4493.5 ppm, As from 6.9 up to 50.9 ppm, Sb from 0.1 up to 241.2 ppm, Ba from 133 up to 2370 ppm, and Hg from below detection up to 36.32 ppm (Fig. 25). The anomaly has minimum dimensions of approximately 450 m long by 200 m wide and is coincident with a distinct northwesterly trending magnetic low. Metals Creek intends to follow up on this gold in soil anomaly in 2013 with a detailed sampling and trenching program.

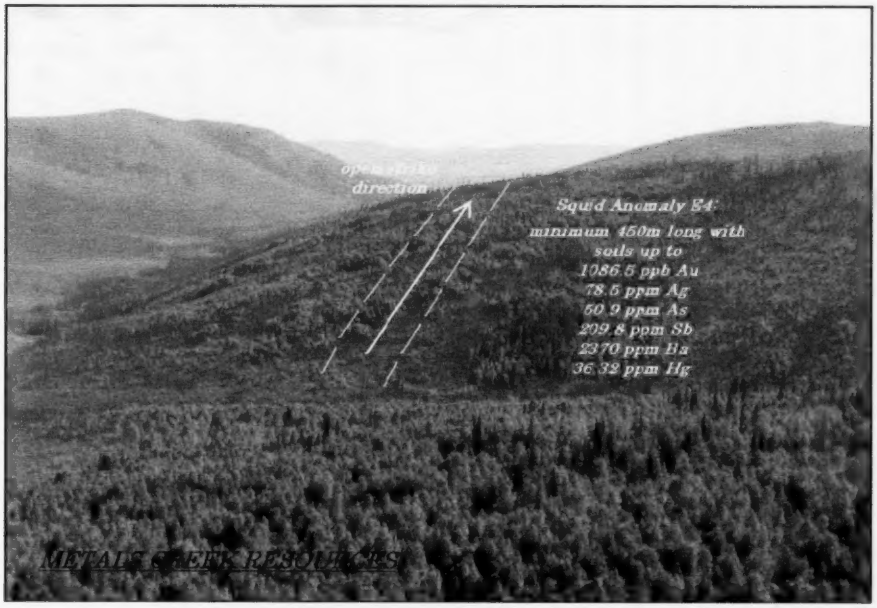

Figure 25. *Multi-element soil anomaly at the Squid project (photo credit: Metals Creek Resources).*

There were a few small grassroots exploration programs scattered throughout the Dawson Range area in 2012. Northern Tiger Resources Inc. (www.northern-tiger.com) completed a small program at the newly acquired **Korat** (Yukon MINFILE numbers pending) project in the White Gold District. The property is located 18 km north of Kinross Gold's Golden Saddle deposit. The grassroots program uncovered an 800-m-long gold-in-soil anomaly associated with a regional magnetic high. Brookemont Capital Inc. (www.brookemontcapital.com) sampled its **Yukon Gold** (Yukon MINFILE numbers pending) property in the White Gold District, bordering Kinross Gold Corp.'s Golden Saddle property. This work expanded on the multi-element-anomalous area that was uncovered in 2011. Gorilla Minerals (http://gorillaminerals.com/) followed up on its **Wels** property (Yukon MINFILE numbers pending) by outlining a gold-in-soil anomaly 1250 m by up to 200 m with values ranging from 34.6 to 5204.4 ppb Au. A selective trench grab sample collected from the centre of the soil anomaly returned 149.6 g/t Au.

Precious metals – gold/silver

Epithermal

Rockhaven Resources, Ltd. (www.rockhavenresources.com) explored its **Klaza** property (Esansee; Yukon MINFILE 115I 067) with a total of 22 206 m of diamond drilling in 73 holes (Table 30). The Klaza property hosts eight parallel structural zones (1-75 m wide) of Au-Ag mineralization consisting of quartz-sulphide veins, breccia, and fracture networks (Fig. 26). These zones are mineralized over strike lengths of 250-2400 m. The company also expanded its claim package through the purchase of the Etzel claims, which adjoin the property to the east.

Table 30. *Significant intercepts from drilling at the Klaza gold property (modified from Rockhaven Resources Ltd.'s August 23, October 2, October 10, November 1 and 14 News Releases). *True widths are estimated to be approximately 80 to 90% of the interval.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
KL-12-64	Klaza	56.46	0.76 g/t Au and 8.85 g/t Ag over 4.68 m
KL-12-71	Klaza	99.89	1.25 g/t Au and 14.89 g/t Ag over 8.16 m
KL-12-96	AEX BRX	329.74	5.78 g/t Au and 111 g/t Ag over 15.62 m
KL-12-97	AEX BRX	236.92	13.05 g/t Au and 17.65 g/t Ag over 1.31 m
KL-12-114	Pika	106.64	2.25 g/t Au and 40 g/t Ag over 12.58 m
KL-12-115	Western Klaza	214.47	4.51 g/t Au and 332 g/t Ag over 7.12 m
KL-12-125	AEX	32.4	0.82 g/t Au and 20.53 g/t Ag over 4.51 m
KL-12-133	Central Klaza	439	11.9 g/t Au and 5.23 g/t Ag over 6.7 m

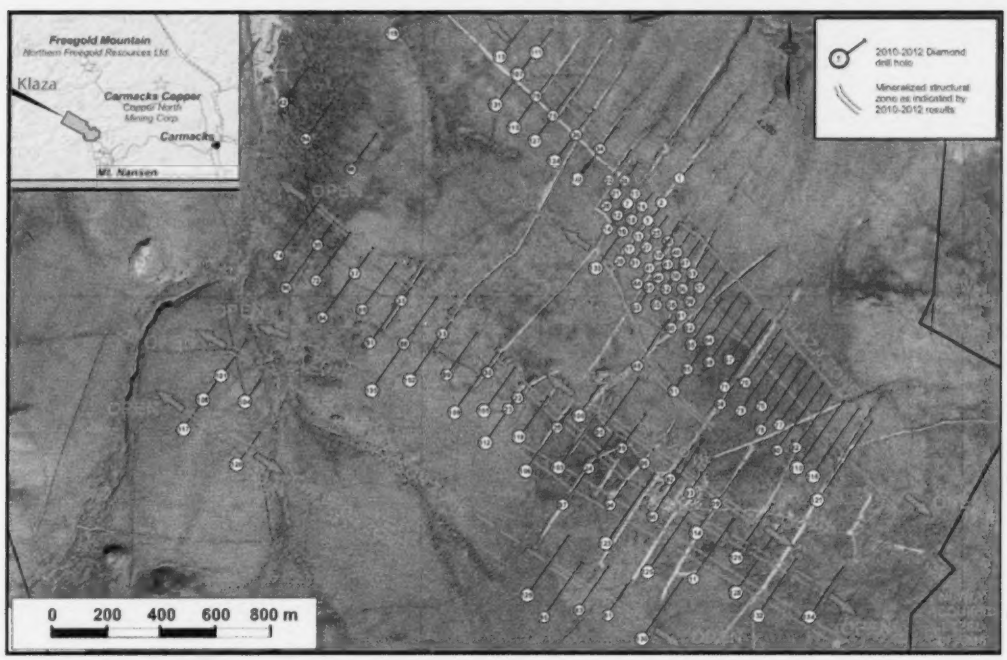

Figure 26. *Annotated map showing the multiple sub-parallel mineralized zones on the Klaza property. Image courtesy of Rockhaven Resources Ltd.*

Ansell Capital Corp. (www.ansellcapital.com) explored its **Charlotte** property in the historic Mt. Nansen district, 60 km west of Carmacks. Six diamond drillholes totaling 1883.5 m (Table 31) were drilled on the **Flex** zone (Mount Nansen; Yukon MINFILE 115I 065). Drilling expanded the zone to the south along strike and down dip. Gold and silver mineralization occurs in northwest-trending shear zones hosted by metamorphic rocks. The metamorphic rocks have been cut by narrow and linear intrusive dykes and sills. Mineralization occurs in quartz-sulphide veins within shear zones and is associated primarily with pyrite and lesser arsenopyrite.

Table 31. *Significant intercepts from drilling at the Charlotte gold project (modified from Ansell Capital Corp.'s September 14, 2012 News Release). * Results are reported with down-hole widths. A minimum cut-off grade of 0.25 g/t Au was applied when expanding mineralized zones across lower-grade material.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
DDH-12-276	Flex Zone	203.3	49.4 g/t Au and 871.6 g/t Ag over 1.6 m
and		155.7	1.14 g/t Au and 63.6 g/t Ag over 14.3 m
DDH-12-278	Flex Zone	182.0	1.6 g/t Au and 26.2 g/t Ag over 13.0 m
including		185.5	4.2 g/t Au and 73.9 g/t Ag over 4.1 m
DDH-12-280	Flex Zone	143.9	27.7 g/t Au and 429.9 g/t Ag over 2.6 m
and		181.9	2.6 g/t Au and 114.0 g/t Ag over 23.7 m
including		188.1	6.7 g/t Au and 316.7 g/t Ag over 8.1 m

Driven Capital Corp (www.drivencapital.ca) focused on its optioned **White River** property, located 30 km southeast of Beaver Creek (Fig. 27). The 2012 program consisted of 1327 m of diamond drilling in 7 holes and targeted structurally associated gold-copper-silver mineralization in localized parts of the **HG**, **Cool**, and **MB** zones (Yukon MINFILE numbers pending). Moderately elevated gold values were identified in all holes and assays ranged from 0.42 to 2.78 g/t Au over intervals ranging from 0.76 to 1.47 m.

Figure 27. *Diamond drilling at the White River property optioned by Driven Capital Corp.*

Precious metals – gold

Porphyry/Sheeted Vein

Northern Freegold Resources Ltd. (www.northernfreegold.com) continued to advance its **Freegold Mountain** property with a diamond drill program and metallurgical testing. The diamond drilling program consisted of 5 holes totaling 2453 m (Table 32). The drill program was designed to test the extent of gold mineralization below the **Nucleus** zone (Yukon Minfile 115I 107) resource model and determine geological controls on mineralization. A preliminary metallurgical study demonstrates high recoveries for both the **Revenue** (Yukon MINFILE 115I 042) copper-gold-molybdenum deposit and Nucleus (Yukon MINFILE 115I 107) gold deposit. A preliminary resource on the Revenue zone was released in March 2012 (Armitage *et al.*, 2012; Table 33). The Nucleus deposit geological model is being reinterpreted and an updated resource estimate is underway. A preliminary economic assessment is expected in the first quarter of 2013.

Table 32. *Significant intercepts from drilling at the Freegold Mountain project, Nucleus gold deposit (modified from Northern Freegold Resources Ltd.'s October 10, 2012 News Release). *The reported intersections are drilled thicknesses. True widths of intercepts are unknown.*

Drillhole	Zone	Depth of intersection (m)	Intersection*
GRD12-175	Nucleus	82.45	1.57 g/t Au over 13.2 m
GRD12-178	Nucleus	230.1	2.12 g/t Au over 11.45 m
GRD12-179	Nucleus	2	0.29 g/t Au and 0.86 g/t Ag over 36.0 m

Table 33. *Mineral Resource Statement for the Revenue deposit (Armitage et al., 2012). *0.5 g/t Au equivalent cut-off grade.*

Area	Classification	Tonnes (000)	Au (g/t)	Ag (g/t)	Cu (%)	Mo (%)	Au Eq (g/t)*	Au Eq Oz
Revenue	Inferred	100983	0.34	3.14	0.13	0.04	1.08	3,659,401

Base metals – copper

Porphyry/Sheeted Vein

Western Copper and Gold Corp. (www.westerncopperandgold.com) continued to advance its bulk-tonnage copper-gold-molybdenum **Casino** deposit (Yukon MINFILE 115J 028). The feasibility study is expected to be released by the end of 2012. Metallurgical test work for the milling design was undertaken and confirmed the pre-feasibility study design which allowed for an output of 120000 tonnes per day. Preliminary studies on suppliers of liquefied natural gas have been undertaken, as has a transportation study on optimizing transport of liquid natural gas to the future mine site. The project is in the permitting phase and the company continues to perform baseline studies to support the permit.

Copper North Mining Corp. (www.coppernorthmining.com) **Carmacks Copper** project (Yukon MINFILE 115I 008) continued on course to permitting the mine for production. Baseline surface water quality, hydrology, and groundwater quality

sampling at the Carmacks site was ongoing in 2012. A revised feasibility-level design for the permanent Heap Leach Facility ("HLF") was proposed. The design incorporates the use of inter-lift liners and enhanced store and release cover (optimized to limit water infiltration into the closed heap), and a new passive treatment. The feasibility study recommends that the company proceed with the development of the Carmacks project. The mine is expected to produce a total of 211.5 million pounds of pure copper cathode over eight years.

BC Gold Corp. (www.bcgoldcorp.com) undertook a small program at its **WS** (Taslar; Yukon MINFILE 115I 007) property in the Minto-Carmacks copper-gold belt. The company completed a soil and biogeochemical orientation survey over a previously drilled target. The soil survey was designed to elucidate results of previous MMI soil sampling programs and to refine drill targets along a 2-km-long IP anomaly.

Silver Range Resources (www.silverrangeresources.com) was active in exploring its **Mint** (Canyon Mountain; Yukon MINFILE 115F 087) project in southwest Yukon. The property hosts alkalic porphyry gold-copper-molybdenum mineralization associated with soil geochemical and coincident IP chargeability/magnetic anomalies (Fig. 28). Work in 2012 consisted of five widely spaced holes totaling 1765 m. Four of the five drill holes yielded long intervals with highly anomalous but sub-economic levels of gold. The best result averaged 0.204 g/t Au across 331.74 m and included an interval that graded 0.556 g/t Au over 53.0 m.

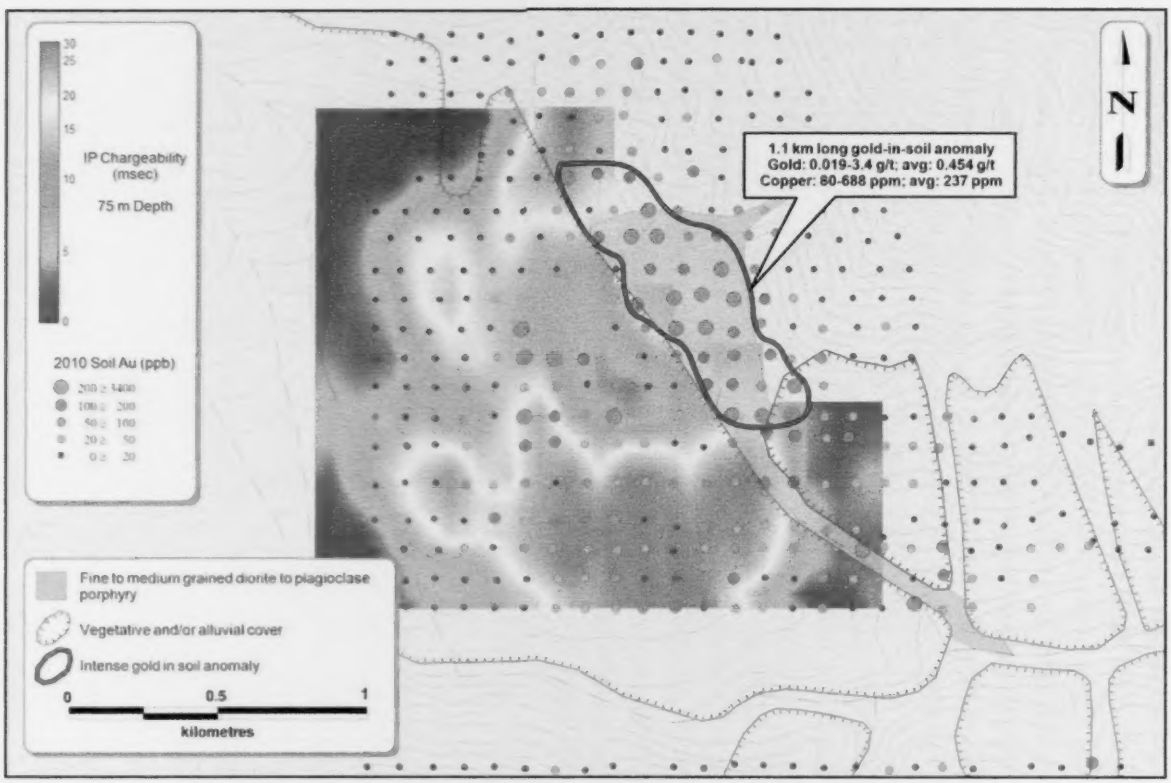

Figure 28. *Gold-in-soil geochemistry overlain on gridded IP data at the Mint project. Image courtesy of Silver Range Resources Ltd.*

Base metals – nickel + platinum group elements (PGE)

Mafic/ultramafic

Prophecy Platinum (www.prophecyplat.com) continued to advance its **Wellgreen** deposit (Yukon MINFILE 115G 024; Fig. 29). Work in 2012 consisted of 29 underground drill holes totaling 5416 m, 22 surface holes totaling 5566 m, soil sampling, and geophysics. Drilling is expected to upgrade a significant part of Wellgreen's inferred resource into the measured or indicated categories. Drilling at Wellgreen returned some significant intersections such as WS12-193 which assayed of 0.37 NiEQ % over 459.45 m and WS12-199 which graded 0.50 NiEQ % over 180.87 m (Table 34). Prophecy released the results of a preliminary economic assessment in 2012, which included a metallurgical study, and initiated base line environmental monitoring.

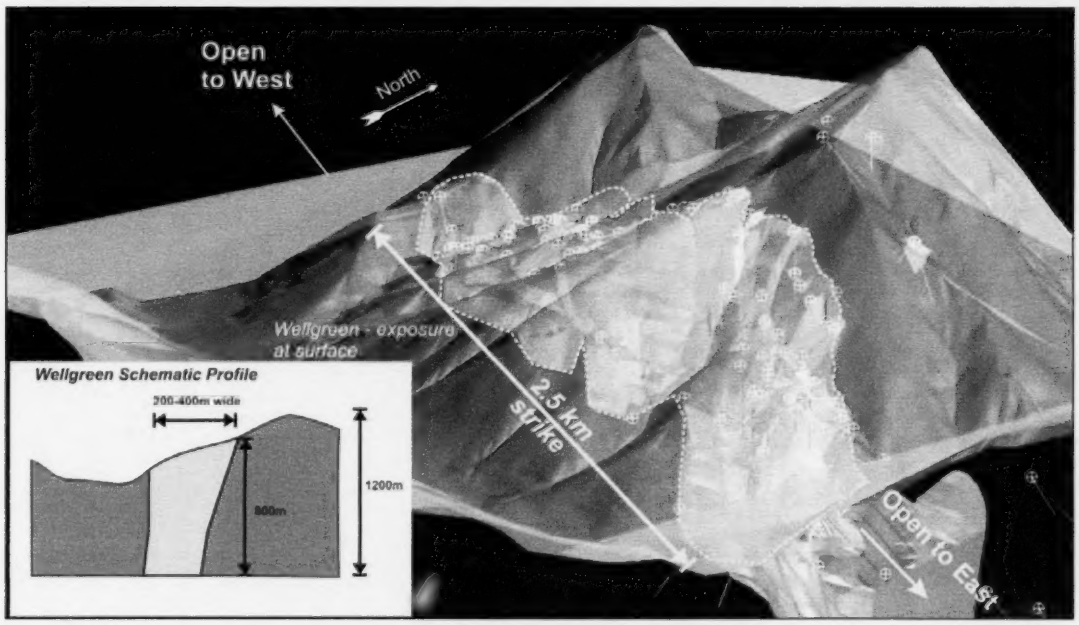

Figure 29. *Schematic of Wellgreen deposit based on drillhole data. Image courtesy of Prophecy Platinum Corporation.*

Industrial minerals

Eagle Industrial Minerals (www.eagleimc.com) is moving its **Whitehorse Copper Belt Magnetite Tailings** project forward. The company is looking at reprocessing magnetite from the historic tailings in the copper belt. There are an estimated 10.4 million tons of tailings containing 18-20% magnetite at the site. The preliminary plan is to excavate the tailings, add water to form a slurry, use magnetic drum separators to separate the magnetite, de-water the magnetite, return the barren tailings to the tailings area, and revegetate. The proposed operation would process 500 tonnes per hour, around-the-clock for seven to eight months of the year. The estimated project life is six to eight years. The project proposal is currently before the water board, and mill construction is scheduled to begin in 2013. The company plans to ship the magnetite ore overseas to Asia through the ore terminal in Skagway, Alaska.

Table 34. *- Significant intercepts from drilling at the Wellgreen deposit (modified from Prophecy Platinum Corp.'s September 24, 2012 News Releases). *Reported widths are intersected widths and not true widths. NiEq calculations are based London Metals Exchange 3 year trailing average metal prices as of July 6, 2012 at $US 9.48/lb nickel, $US 3.56/lb copper, $US 16.23/lb cobalt, $US 1377.87/troy oz gold, $US 1587.97/troy oz platinum, and $US 581.28/troy oz palladium. The equation for NiEq value is as follows: NiEq = ((Ni grade x Ni price x 22.04622) + (Cu grade x Cu price x 22.04622) + (Co grade x Co price x 22.04622) + (Au grade x Au price x 0.02916) + (Pt grade x Pt price x 0.02916) + (Pd grade x Pd price x 0.02916)) / (Ni price x 22.04622).*

Drillhole	Zone	Depth of intersection (m)	Intersection*
WS12-195	surface	0	0.45 NiEQ % over 190.01 m
WS12-200	surface	179.5	1.27 NiEQ % over 16.05 m
WS12-206	surface	89.71	0.71 NiEQ % over 4.96 m
WU12-540	underground	0	0.47 NiEQ % over 304.5 m
WU12-541	underground	0	0.52 NiEQ % over 268.22 m
WU12-544	underground	0	0.48 NiEQ % over 154.53 m

ACKNOWLEDGEMENTS

This overview of activities in the Yukon exploration and mining sector is based on information gathered from a variety of sources, including material provided by companies through press releases, personal communication, and property visits conducted by Yukon Geological Survey staff during the 2012 field season. We gratefully acknowledge the cooperation of companies and individuals in providing information and gracious hospitality during property visits.

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APPENDIX 1: 2012 EXPLORATION PROJECTS

Project	Optioner/Owner	Occurrence	NTS	Work type	Commodity	Deposit
PRECIOUS METALS - GOLD						
3Ace	Northern Tiger Resources Inc.	105H 036	105H 09	P, G, GC, T, DD	Au	porphyry/sheeted vein
Ballarat	Stakeholder Gold Corp.	115J 061	115O 03	DD	Au	vein/breccia
Betty	Ethos Capital Corp./Ryan, S.	115J 074	115J 15	GC, RC/P	Au	vein/breccia
Big Creek	Teck Resources Ltd.		115I 12, 15; 115J 09	GC	Au	vein/breccia
Boulevard	Independence Gold Corp.	115J 050	115J 13	P, G, GC	Au	porphyry/sheeted vein
Brewery Creek	Golden Predator Corp.	116B 160	116B 01	DD, RC/P	Au	porphyry/sheeted vein
Cache Creek	Golden Predator Corp.	105O 051	105O 03, 04, 05, 06	AGP, GC	Au	porphyry/sheeted vein
Cantung	Ryan Gold Corp.		95E 05	G, GC	Au	vein/breccia
Charlotte	Ansell Capital Corp.	115I 065	115I 03	DD	Au	vein/breccia
Coffee	Kaminak Gold Corp.	115J 110	115J 14	GC, DD, RC/P	Au	vein/breccia
Dade	Wolverine Minerals Corp./ Strategic Metals Ltd.	115I 022	115I 03	DD, RC/P	Au	vein/breccia
Dublin Gulch	Victoria Gold Corp.	106D 025	106D 04	DD	Au	porphyry/sheeted vein
Dun	Long, C.	115O 164	115O 11	GC	Au	mafic/ultramafic associated
Einarson	Anthill Resources Ltd.		105O 10, 14, 15; 106B 03, 04	GC, DD	Au	sediment-associated
Etzel	Great Bear Resources Ltd./Ansell Capital Corp.		115I 03	DD	Au	vein/breccia
Flume	Ryan Gold Corp.	115N 110	115N 09	G, GC, DD	Au	skarn/replacement
Glenmorangie	Commander Resources Ltd.		105H 16	P, G, GC	Au	vein/breccia
Henderson	Independence Gold Corp.		115O 06	P, G	Au	vein/breccia
Ida Oro	Ryan Gold Corp.	116A 027	116A 04	GC, DD	Au	porphyry/sheeted vein
Jubilee	Long, E.		105 D01	P, GC, G	Au	porphyry/sheeted vein
Justin	Aben Resources Ltd./Eagle Plains Resources Ltd.	105H 035	105H 09	P, G, AGP, GC, DD	Au	vein/breccia
Joy	Expedition Mining Inc.		106C 03	P, G, GC	Au	sediment-associated

Abbreviations

AGP - airborne geophysics
DD - diamond drilling
G - geology
GC - geochemistry
GP - ground geophysics
MD - mine development
P - prospecting
RC/P - reverse circulation/percussion drilling
T - trenching
U/GD - underground development

Appendix 1 (continued): 2012 EXPLORATION PROJECTS

Project	Optioner/Owner	Occurrence	NTS	Work type	Commodity	Deposit
King Solomon Dome	Kestrel Gold Inc./Kreft, B.	115O 068	115O 15	GP	Au	vein/breccia
Klaza	Rockhaven Resources Ltd.	115I 067	115I 03	T, DD	Au-Ag	vein/breccia
Klondike Valley	Diamond Tooth Resources Inc.		116 B3	T, GC	Au	vein/breccia
Lansing	New Dimension Resources Ltd./ Strategic Metals Ltd.		105N 01, 10	P, G, GC, T	Au	sediment-associated
Leotta	Goldbank Mining Corp.	115O 074	115O 15	P, GC	Au	vein/breccia
Little Hyland	Lee, G.		105H 16	P, GC, GP	Au	vein/breccia
Livingstone - RNB claims	Goldstrike Resources Ltd.		105E 08	P, G	Au	vein/breccia
Lonestar	Klondike Gold Corp.	115O 072	115O 14	P, G, GC, DD	Au	vein/breccia
Mac	Newmont Mining		105O 01	P, GC	Au	sediment-associated
Mag	Brewer, K.		115N 15	GC	Au	vein/breccia
Mariposa	Pacific Ridge Exploration Ltd.	115O 075	115O 01, 02; 115J 15, 16	GP, GC, T, DD	Au	vein/breccia
Midas Touch	Strategic Metals Ltd.		106C 03, 106D 01	DD	Au	sediment-associated
Mint	Silver Range Resources Ltd.	115F 087	115H 14	DD	Au	porphyry/sheeted vein
ML claims	Mayo Lake Minerals Inc.		105M 10, 11, 14, 15	P, GC, GP	Au	sediment-associated
Money	White Pine Resources Inc.		115O 12	P, GC, T	Au	vein/breccia
Nucleus	Northern Freegold Resources Ltd.	115I 107	115I 06	GC, DD	Au	porphyry/sheeted vein
Ogi	Fox Exploration Inc.		116B 01	P, GC	Au	porphyry/sheeted vein
Oro	Colorado Resources Ltd.		105O 07	P, G, GC	Au	sediment-associated
Piggot Creek	Black, A.		105H 09	T, GC	Au	vein/breccia
Plateau North	Goldstrike Resources Ltd.		105N 06	P, G, GP, T	Au	vein/breccia
Plateau South	Goldstrike Resources Ltd.		105N 06	P, G, GP, T	Au	vein/breccia
QV property	Comstock Metals Ltd./Ryan, S.		115O 05	P, G, GC, T, DD	Au	vein/breccia
Rackla Gold Project (Osiris, Isis, Conrad, etc.)	ATAC Resources Ltd.		106C 01	P, G, GC, DD	Au	sediment-associated

Abbreviations

AGP - airborne geophysics
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G - geology
GC - geochemistry
GP - ground geophysics
MD - mine development
P - prospecting
RC/P - reverse circulation/percussion drilling
T - trenching
U/GD - underground development

Appendix 1 (continued): 2012 EXPLORATION PROJECTS

Project	Optioner/Owner	Occurrence	NTS	Work type	Commodity	Deposit
Raven	Ryan, S.		106C 05	P, GC	Au	IOCG
Rose Bute	Taku Gold Corp./RyanWood Exploration Inc.		115O 06	DD	Au	vein/breccia
Scarlet East	Strategic Metals Ltd./Rackla Metals Inc.		106C 01	P, GC, DD	Ag	sediment-associated
Scarlet West	Rackla Metals Inc.	106C 065	106C 06	P, G, GC	Au, Pb-Zn	sediment-associated
Sprogge	Northern Tiger Resources Inc.	105H 103	105H 09	GC, T	Au	vein/breccia
Squid	Metals Creek Resources Corp.		115N 10	GC	Au	vein/breccia
Sulphur	Taku Gold Corp./Morgan, T.		115O 10	DD	Au	vein/breccia
Summit	Goldstrike Resources Ltd.		105I 06	P, G	Au	sediment-associated
Tell	Manson Creek Resources Ltd.	106C 091	106C 03	GP	Au	sediment-associated
Tender	White Pine Resources Inc.		115O 06	P, GC	Au	vein/breccia
Vivi	Wolverine Minerals Corp.		105A 13	RC/P	Au	mafic/ultramafic associated
Wels	Gorilla Resources Corp.		115J 05	GC, T	Au	vein/breccia
White Gold	Kinross Gold Corp.	115O 011	115O 04	GC	Au	vein/breccia
White River	Driven Capital Corp./Tarsis Resources Ltd.		115K 01	DD	Au	vein/breccia
Wolf	Teck Resources Ltd.		115G 13, 14; 115J 03, 04; 115G 14	GC	Au	vein/breccia
YCS	Independence Gold Corp.		115J 13	GC, T	Au	vein/breccia
Yukon	Cantex Mine Development Corp.		106B 04	P, GC	Au	sediment-associated
PRECIOUS METALS - SILVER						
Keno Hill	Alexco Resource Corp.	105M 001	105M 14	P, G, GC, DD, MD	Ag	vein/breccia
Silver Range (Keg)	Silver Range Resources Ltd.	105K 078	105K 11	DD	Ag, Pb-Zn	skarn/replacement

Abbreviations

AGP - airborne geophysics
DD - diamond drilling
G - geology
GC - geochemistry
GP - ground geophysics
MD - mine development
P - prospecting
RC/P - reverse circulation/percussion drilling
T - trenching
U/GD - underground development

Appendix 1 (continued): 2012 EXPLORATION PROJECTS

Project	Optioner/Owner	Occurrence	NTS	Work type	Commodity	Deposit
BASE METALS - COPPER						
Alaskite	Ryan, S.		115G 08	GC	Cu	porphyry/sheeted vein
Casino	Western Copper and Gold Corp.	115J 028	115J 10	DD	Cu	porphyry/sheeted vein
Del	Northern Tiger Resources Inc.	115I 095	115I 07	GP	Cu	porphyry/sheeted vein
King Lake Copper	Tanana Exploration	105D 104	105D 14	GC, G	Cu	porphyry/sheeted vein
Minto	Capstone Mining Corp.	115I 021	115I 11	DD, MD	Cu	porphyry/sheeted vein
WS Total	BCGold Corp.	115I 006	115I 07	P, G, GC	Cu	porphyry/sheeted vein
BASE METALS - LEAD-ZINC						
La Liga	Inform Resources Corp.		115K 13	P, G, GC	Pb-Zn	sediment-associated
Mel	Kobex Resources Ltd.	095D 005	095D 06	GC	Pb-Zn	sediment-associated
R-15	Redtail Metals Corp.		105G 07, 08	DD	Pb-Zn	volcanic associated
Selwyn Project	Selwyn Resources Ltd.	105I 012	105I 06	DD	Pb-Zn	sediment-associated
BASE METALS - TIN, TUNGSTEN						
Jennings	Agnico-Eagle Mines Ltd.	105B 089	105B 01	GC	Mo-W	porphyry/sheeted vein
Dorsey Lake	Panarc Resources		115B 03, 04	GC	Sn-W	porphyry/sheeted vein
BASE METALS - NICKEL, PGEs						
Mich	First Point Minerals Corp.		105D 09	P, GP, GC	Ni	mafic/ultramafic associated
Wellgreen	Prophecy Platinum Corp.	115G 024	115G 05	DD	Ni-PGE	mafic/ultramafic associated
RARE EARTHS						
Bandito	Endurance Gold Corp.	095C 051	095C 05	P, GC	REEs	intrusion-related

Abbreviations

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GP - ground geophysics
MD - mine development
P - prospecting
RC/P - reverse circulation/percussion drilling
T - trenching
U/GD - underground development

APPENDIX 2: 2012 DRILLING STATISTICS

Property	Optioner/Owner	# of drillholes	# of metres
Diamond drilling			
3Ace	Northern Tiger Resources Inc./MacMillan, A.	15	1711
Ballarat	Stakeholder Gold Corp.	5	753
Brewery Creek	Golden Predator Corp./Alexco Resource Corp.	197	22231
Charlotte	Ansell Capital Corp.	6	1884
Coffee	Kaminak Gold Corp.	125	29630
Crag	Strategic Metals Ltd.	9	2823
Crag East	Strategic Metals Ltd.	15	2916
Dade	Wolverine Minerals Corp.	23	2043
Dublin Gulch (Eagle Deposit)	Victoria Gold Corp.	54	17000
Dublin Gulch (Olive Zone)	Victoria Gold Corp.	11	2996
Einarson	Anthill Resources Ltd.	10	1875
Etzel	Great Bear Resources Ltd./Ansell Capital Corp.	3	>700
Flume	Ryan Gold Corp.	9	2906
Ida Oro	Ryan Gold Corp.	28	7525
Justin	Aben Resources Ltd./Eagle Plains Resources Ltd.	9	1994
Keno Hill (Flame & Moth)	Alexco Resource Corp.	23	3893
Lonestar	Klondike Gold Corp.		1500
Klaza	Rockhaven Resources Ltd.	73	22206
Mariposa	Pacific Ridge Exploration Ltd.	14	2450
Midas Touch	Strategic Metals Ltd.		>7000
Mint	Silver Range Resources Ltd.	5	1765
Minto	Capstone Mining Corp.		29500
Nucleus	Northern Freegold Resources Ltd.	5	2453
Plateau North	Goldstrike Resources Ltd.	3	212
Plateau South	Goldstrike Resources Ltd.	2	165
QV property	Comstock Metals Ltd.	8	1334
Rackla Gold Project (Osiris, Isis, Conrad, etc.)	ATAC Resources Ltd.	116	37100
R15 Block	Redtail Metals Corp.	5	686
Rosebute	Taku Gold Corp.	4	963
Scarlet East	Strategic Metals Ltd.	5	1168
Selwyn Project	Selwyn Resources Ltd.	14	10639
Silver Range (Keg)	Silver Range Resources Ltd.	65	15256
Sulphur	Taku Gold Corp.	7	1033
Wellgreen	Prophecy Platinum Corp.	42	8600
White River	Driven Capital Corp./Tarsis Resources Ltd.	7	1327

Appendix 2 (continued): 2012 DRILLING STATISTICS

Property	Optioner/Owner	# of drillholes	# of metres
Percussion/Reverse Circulation			
Betty	Ethos Gold Corp.	61	7132
Brewery Creek	Golden Predator Corp.	80	9915
Coffee	Kaminak Gold Corp.	223	39455
Dade	Wolverine Minerals Corp./Strategic Metals Ltd.	24	1426
Vivi	Wolverine Minerals Corp./Strategic Metals Ltd.	27	1562

Yukon Placer Mining Overview 2012

Jeffrey Bond[1]
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Bond, J.D., 2013. Yukon Placer Mining Overview 2012. *In:* Yukon Exploration and Geology Overview 2013, K.E. MacFarlane and M.G. Nordling (eds.), Yukon Geological Survey, p. 67-70.

PLACER MINING

Sustained high gold prices benefited Yukon placer miners once again throughout the 2012 season. The season started slowly with high rainfall and flooding, particularly in southwest Yukon and the Kluane District. Mining continued into late October in most districts.

Gold production from Yukon's placer mining industry increased from 46,754 crude ounces in 2011 to 51,679 crude ounces in 2012 (Fig. 1). The 5000 crude ounce increase amounted to a gain of 10% over 2011 production. When compared to the last 10 years, the 2012 production is still below the average of 60,000 crude ounces (Fig. 1). The big news in 2012 was that gold prices maintained a strong position, with an average value of US$1649 per ounce between May 1st and October 31st, 2012. The production value for 2012 was just over US$68 million and the average Canadian to US dollar exchange rate for that period was near par. Comparing the 2012 production value to the inflation adjust values for the last 32 years demonstrates a different trend than looking solely at the crude ounce production numbers (Fig. 2). The inflation-adjusted average gold production value for the last 32 years is US$41 million, which makes the 2012 US dollar value the sixth highest in the last 32 years (Fig. 2).

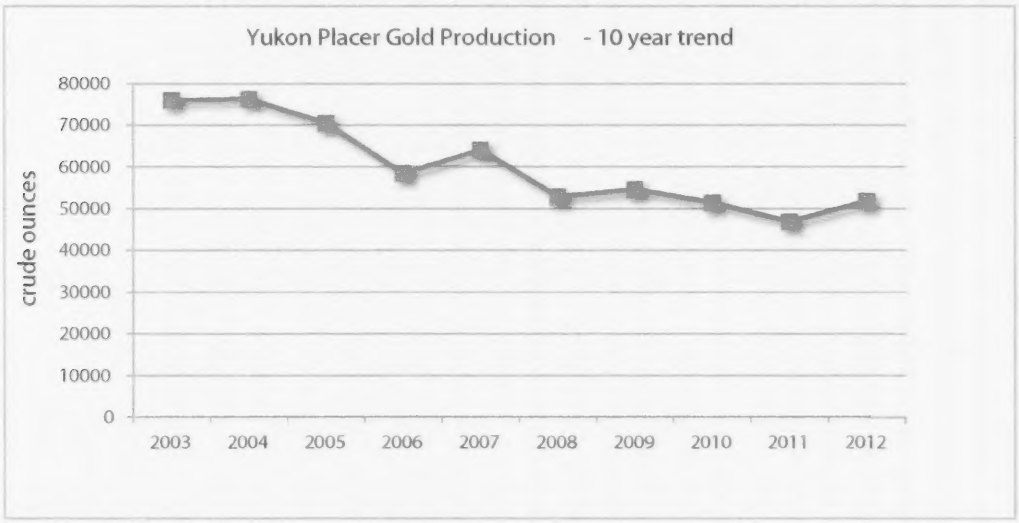

Figure 1. *Yukon placer gold production figures, 2003-2012.*

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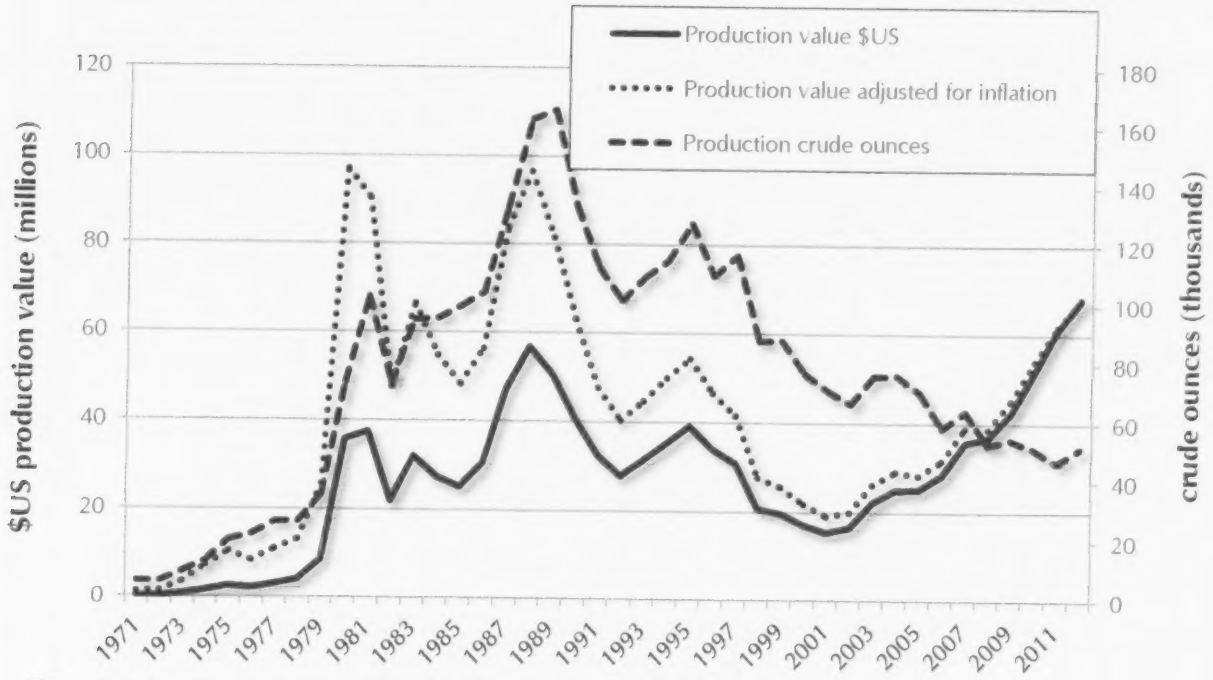

Figure 2. *Yukon Placer Gold Production History, 1971-2012.*

For a closer look at the production distribution in Yukon, we will examine the following regional placer mining districts: Indian River, Klondike, West Yukon, Lower Stewart, Clear Creek, Dawson Range, Mayo, Kluane, Livingstone and Whitehorse South (Fig. 3).

Reported placer gold production from the Indian River drainages increased 50% from 14,228 crude ounces in 2011 to 21,283 crude ounces in 2012. This significant change was the largest amongst all the districts and accounts for the 10% gain in total Yukon production. The majority of the production increase from the Indian River drainage came from operations on Eureka and Quartz creeks. The Indian River remains the top gold producing drainage in Yukon.

In the Klondike area drainage, the 2012 production changed very little from 2011. Total reported crude ounces equalled 10,892 with 80% of the production coming from Hunker, Bonanza, and Last Chance creeks, and Prado Hill. The largest production change occurred on Hunker Creek with a 46% increase over 2011.

West Yukon (Sixtymile, Fortymile, and Moosehorn Range) placer gold production decreased by 24% from 7022 crude ounces in 2011 to 5525 crude ounces in 2012. The most significant decreases occurred on Matson Creek (50%), Sixty Mile River (36%) and Kate Creek (50%). Mining resumed on Miller Creek, producing 703 crude ounces, and significantly increased on Moose Creek from 162 crude ounces to 629 crude ounces.

The production from the Lower Stewart drainages continued to drop for a second year in row from 7156 crude ounces in 2011 to 6902 crude ounces in 2012. One of the highlights from the district was a near doubling in production from the Black Hills Creek drainage, from 1264 crude ounces in 2011 to 2350 crude ounces in 2012. Production from Scroggie Creek also increased. Production decreased from Barker (1806 crude ounces), Henderson (347 crude ounces) and Thistle creeks (27 crude ounces).

A big surprise for 2012 was strong production growth from the Clear Creek drainages. The area has seen a surge in operations recently, reflected by an 80% growth from 1009 crude ounces in 2011 to 1810 crude ounces in 2012. The majority of the production was from Clear Creek.

Production from the Dawson Range decreased by 28% from 1982 crude ounces in 2011 to 1437 crude ounces in 2012. The majority of this change can be accounted for by a production decrease of 45% from Nansen Creek and a 50% decrease from Back Creek.

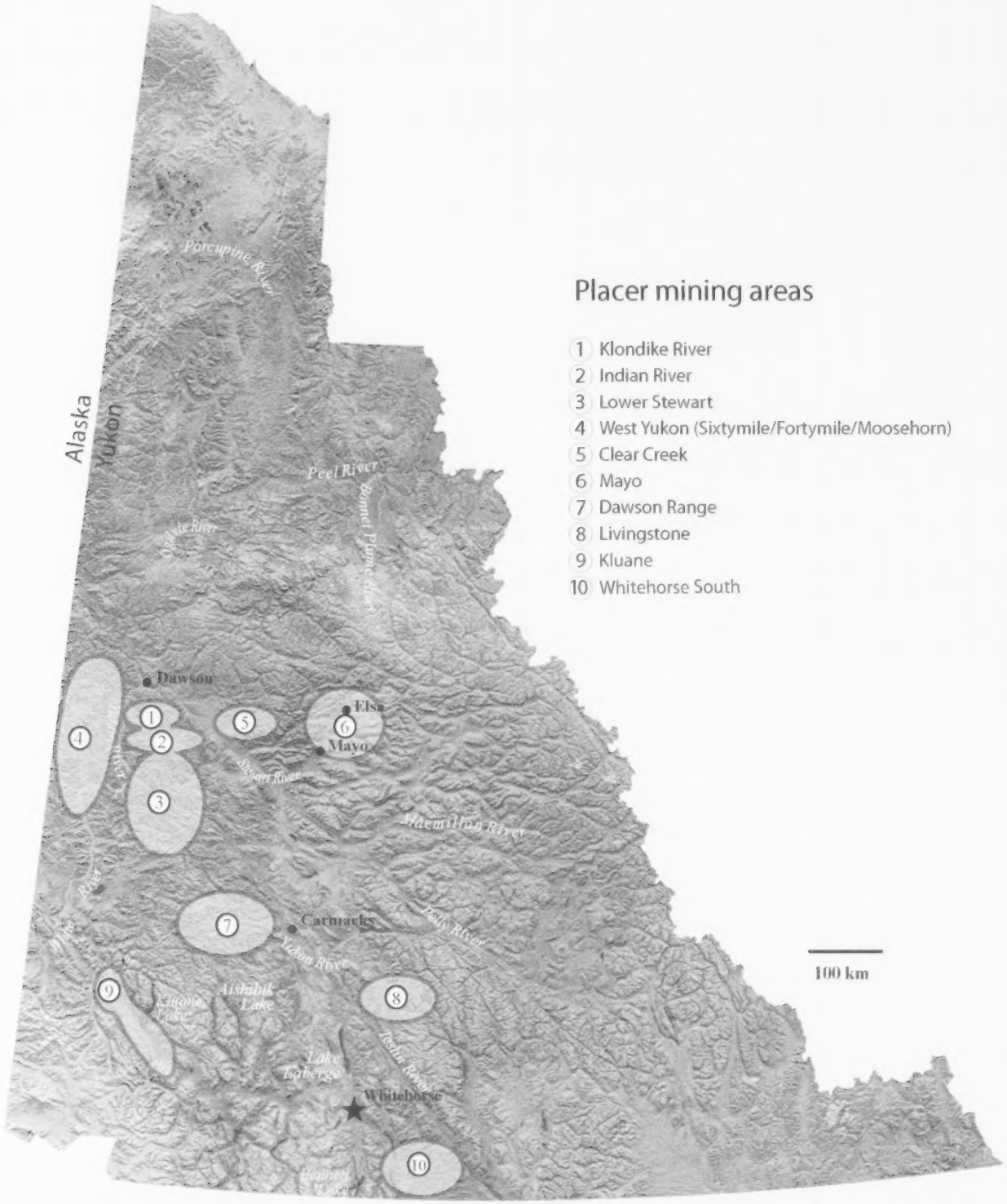

Figure 3. *Yukon placer mining areas.*

Placer gold production from the Mayo area remained consistent with 2011 production. The total placer gold resource reported for the area in 2012 was 1434 crude ounces. Royalties were reported for both Davidson (114 crude ounces) and Highet (118 crude ounces) creeks, after no production reporting in 2011. Production decreases in both Anderson Creek and Thunder Gulch offset the gains realized from the new production.

Reported placer production in the Kluane area rose slightly from 819 crude ounces in 2011 to 894 crude ounces in 2012. More than half of the production (570 crude ounces) comes from the Gladstone River. Production nearly doubled for Ruby Creek, despite the washouts that hampered the early part of the season. Burwash Creek reported production at 40% less than 2011.

Placer mining in the Livingstone Creek area continued for a second year in a row with 40 crude ounces reported from Little Violet Creek. This is down from 112 crude ounces in 2011.

Whitehorse South area experienced some placer royalties with 10 crude ounces reported from Moose Brooke and Iron creeks.

The 10% increase in the production of placer gold during the 2012 season is encouraging for the Yukon economy. A shift towards production increases has been anticipated with the record gold prices, although it has taken longer than expected. The lag between the increase in gold prices and a subsequent increase in production may be related to the nature of the business. Placer resources are particularly challenging to define (and mine) and because of that require private funding. Growth in the industry largely occurs from within, and prudently, as profits are realized. The production contributions from new miners to the territory are likely quite small compared to the production increases from existing mines. This is demonstrated by the significant increase in production from the Indian River, which is largely tied up by well-established miners. Nevertheless, as long as gold prices stay high there is more time for new miners to gain an economic foothold in the industry and grow to become steady contributors.

Yukon Mining Incentive Program: 2012-13 update

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Torgerson, D., 2013. Yukon Mining Incentive Program: 2012-13 update. *In:* Yukon Exploration and Geology Overview 2012, K.E. MacFarlane and M.G. Nordling (eds.), Yukon Geological Survey, p. 71-75.

PROGRAM SUMMARY

The Yukon Mining Incentive Program (YMIP) is a funding program designed to support individual prospectors, partnerships, and companies by providing a portion of the risk capital required to locate, explore, and develop mineral occurrences in Yukon. YMIP funding has consistently demonstrated its impact as an effective economic incentive by supporting the exploration community in its efforts. This support has led to numerous discoveries, which in turn, have provided significant long term economic benefits to the territory.

YMIP funding supports placer and hard rock exploration projects by reimbursing a percentage of approved exploration expenditures. Funding is merit-based; a panel of geologists evaluate submissions using a ranking system designed to score a range of criteria, quantifying the quality of the target, the proposal, the work plan, and the applicant's previous YMIP performance. This scoring system is available to the applicants (details on our website at *http://www.geology.gov.yk.ca/ymip.html*). The program comprises three different modules of varying reimbursement rates and maximum allowable funding (Table 1 and Fig. 1).

Table 1. *YMIP 2012 funding.*

2012 Funding Levels	Grassroots	Focused Regional	Target Evaluation
maximum funding	$15000	$15000	$25000
reimbursement rate	up to 100% of eligible expenses	up to 75% of eligible expenses	up to 50% of eligible expenses
no. of approved placer applications	1	0	6
no. of approved hard rock applications	2	8	12

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YMIP 2012 At A Glance			
	Grassroots	**Focused Regional**	**Target Evaluation**
Funding	max $15000	max $15000	max $25000
Reimbursement rate	up to 100% of eligible expenses	up to 75% of eligible expenses	up to 50% of eligible expenses
Scope of work	to generate new targets and advance existing ones	to generate new targets	to evaluate and advance already known targets
Who is it for	individual prospectors only (no companies nor anyone working on behalf of a company)	prospectors, companies, partnerships	prospectors, companies, partnerships; projects with total exploration expenditures less than $200000
Work to proceed on	on claims, leases, or crown land	on claims, leases, or crown land	on claims, leases, coal exploration licenses, or quarry leases, not crown land
Advance of funds	advance $2500 ($1000 for first time applicants)	no advance	no advance
Field time requirements	minimum 30 person-days in field, daily log	no constraints on time in field, final technical report	no constraints on time in field, final technical report
Holdback/reports	15% holdback until submission of final reporting requirements		
Reporting deadlines	project proposal: March 31, Status Report: September 30, Final Financial Report and Final Summary/ Technical report and release of funds: January 31 of following calendar year; 15% of funds will be held back until submission of final reporting requirements		
Confidentiality	reports will be kept confidential for 5 years	reports will be kept confidential for 2 years	
Module-specific eligible expenses	applicant cannot draw wages but wages for one assistant are eligible		road building costs up to <25% of YMIP contribution if pre-approved, drilling
Eligible expenses	conventional exploration work, travel within Yukon (truck, helicopter, *etc.*) (up to 25% of eligible claim), assays, shipping, wages (applicant not eligible in grassroots module), WCB, contracts, equipment rental, daily field expenses, fuel, claim staking (up to 20% of eligible claim), reclamation, limited physical work		
Reimbursement rate guidelines	expenses reimbursed according to YTG guidelines; private and commercial rates are provided; private rates for heavy equipment are 75% of commercial rate as approved by YTG		
Staking	staking costs up to 20% of eligible contribution		
Travel	travel within Yukon (truck, helicopter, *etc.*) up to 25% of eligible contribution		
Eligible use of machinery	use of light equipment (<5 tons)		use of light or heavy equipment
Non-eligible expenses	GST, recording fees, management fees, costs of applying for permits or licenses, project planning and compilation, legal fees, promotional expenses, transportation outside Yukon, underground work, preparation for mining, mining, acquisitions, repairs		
Compliance	applicants must ensure that proper permitting is in place and that their work programs satisfy existing laws and regulations		

Figure 1. *YMIP 2012 At A Glance.*

Table 2. YMIP historical funding, fiscal years 2007-08 through 2012-13.

Historical funding	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
available funding	$600000	$600000	$1.67M	$1.67M	$570000	$570000
no. of applications	56	58	173	165	83	79
approved projects	45	46	102	83	34	29
max funding level grassroots	$10000	$10000	$10050	$15000	$15000	$15000
max funding level focused regional	$15000	$15000	$18750	$25000	$15000	$15000
max funding level target evaluation	$20000	$20000	$50000	$50000	$25000	$25000

UPDATE FOR 2012

The program was oversubscribed again in 2012, with 80 applicants competing for $570000 in funding. The amount of funding available for successful applicants was down from the previous 2 years which annually saw $1.67M. Previous years of increased funding were designed to support the exploration industry through the recession. In light of the current financial challenges facing the exploration industry, YMIP funding was highly successful in pushing projects forward and has resulted in several potentially significant discoveries in 2012.

The competition for YMIP funding was very tight in 2012 and many quality projects were unable to be funded due to budget constraints. Challenges to secure equity financing, especially amongst the junior mining applicants, led multiple applicants to withdraw their applications. Table 2 outlines historical funding levels for the past six years.

A total of 29 applications were offered funding. The amounts available under each module were unaltered from 2011. Grassroots funding was maintained at $15000. Focused Regional and Target Evaluation modules saw funding maintained at $15000 and $25000 respectively. Of the 29 successful applicants 3 projects were in the Grassroots module, 8 in the Focused Regional, and 18 in the Target Evaluation module. This year, most applications were funded at the maximum allowable based upon the proposed budget.

Of the 29 applications that were offered funding in 2012, hard rock projects account for 74% of the successful applications and placer projects account for the remaining 26%. Individual prospectors and private companies secured approximately 86% of available funds while public junior mining companies received approximately 14% of the funds. The breakdown between the different modules and the demographics of the applicants over the past three years is outlined in Table 3.

In 2012, the bulk of placer projects were centered in the Klondike placer district, with two projects in the Kluane area. Hard rock projects were fairly evenly distributed throughout the territory. Gold appeared to be the most sought after commodity this year and some clustering of projects occurred around exciting recent discoveries in the Klondike/White Gold Area, and in the Selwyn Basin. Other successful applications were located in south and central

Table 3. YMIP funding statistics for fiscal year 2010-11 through 2012-13.

	2010-11		2011-12		2012-13	
Approved projects	# of approved projects	% of approved funding	# of approved projects	% of approved funding	# of approved projects	% of approved funding
approved placer	23	25%	7	26%	7	28%
approved hard rock	60	75%	27	74%	22	72%
total projects approved	83		34		29	
prospectors/ individuals	49	46.8%	22	60%	17	59%
private companies	14	18.7%	4	15%	8	27%
public companies	22	36.3%	8	25%	4	14%

Yukon (Fig. 2). 22 projects targeted gold as the primary commodity (placer, structurally controlled, epithermal, intrusion related and orogenic deposit types), 1 project identified vein hosted silver as the target, 4 projects explored for porphyry copper potential, 1 for tin/tungsten skarn and greisen mineralization, and 1 proposal looked at a magmatic massive sulphide copper/nickel prospect.

YMIP's aim is to keep a variety of projects at various stages of advancement. During the 2012 season, 23 of the projects indicated that soil/silt sampling and prospecting would be the primary focus of the program; 2 programs completed various ground and airborne based geophysical surveys, and 4 of the project proposals were for drilling and/or trenching.

The success of the program can be measured by a number of indicators. In 2012, ~$1.7M was leveraged from YMIP funding. It was a very challenging year across the board for option agreements, as many options were returned to the vendors. However, a number of very encouraging YMIP discoveries were made in 2012 which should stimulate exploration expenditures in the years ahead. In 2012, YMIP funding contributed to the staking of approximately 300 new claims, and the discovery of 7 new potentially significant occurrences. Benefits of the program can span several years: follow-up property option and/or exploration work may occur several years after the initial YMIP funding. A number of significant properties have benefited from YMIP funding in the past which has led to important expenditures. Table 4 highlights a few of these projects.

Program materials have been updated and posted on the YMIP website. New versions of the application form, scoring criteria, and the program's guidelines are now available for download.

YMIP is designed to meet the needs of the users of the program and to act as an engine for economic development; therefore the program is continually evolving to meet these goals. Any additional changes to the program's guidelines and maximum funding levels will be announced when the budget for the 2013-14 program is known.

Table 4. *YMIP 2012 successful options.*

YMIP Successful Options				
YMIP#	**Property Name**	**Total YMIP Contribution(s)**	**Optioned by**	**Company investment or work commitment**
01-011	Ice/Red Mountain	$12 500	AM Gold	~$7.5 M
03-079	White Gold	$10 000	Madeilena/Underworld/Kinross	~$33.2 M
04-072 and 05-043	Blende	$30 000	Blind Creek Resources	>$5 M
05-058	Andrew	$14 400	Overland Resources	~$5.5 M
06-054	Antimony Creek	$10 000	Logan Resources/Golden Predator	~$0.35 M
04-041 and 07-043	Coffee	$35 000	Kaminak Gold Corp.	~$56 M
07-056, 08-012 and 09-112	Toni/Sixty Mile	$33 000	Radius Gold	~$4.5 M
03-023, 06-033 and 09-137	Scheelite/Gold Dome	$75 000	Golden Predator	~$1.4 M
09-015	Clear Creek	$10 450	Golden Predator	~$4.1 M
09-016 and 09-017	Ten Mile Creek	$25 600	Radius Gold/Solomon Resources	~$0.63 M
09-158	Prospector Mountain	$30 750	Silverquest Resources	~$3.85 M
09-116	Cynthia	$15 350	Golden Predator	~$1.7 M
09-173	Shark/True Blue	$21 354	Great Western Minerals	~$1 M
10-097	Portland	$14 320	Taku Gold	~$1.25 M
00-069, 06-005 and 06-006	Mariposa	$36 000	Pacific Ridge	~$4.5 M

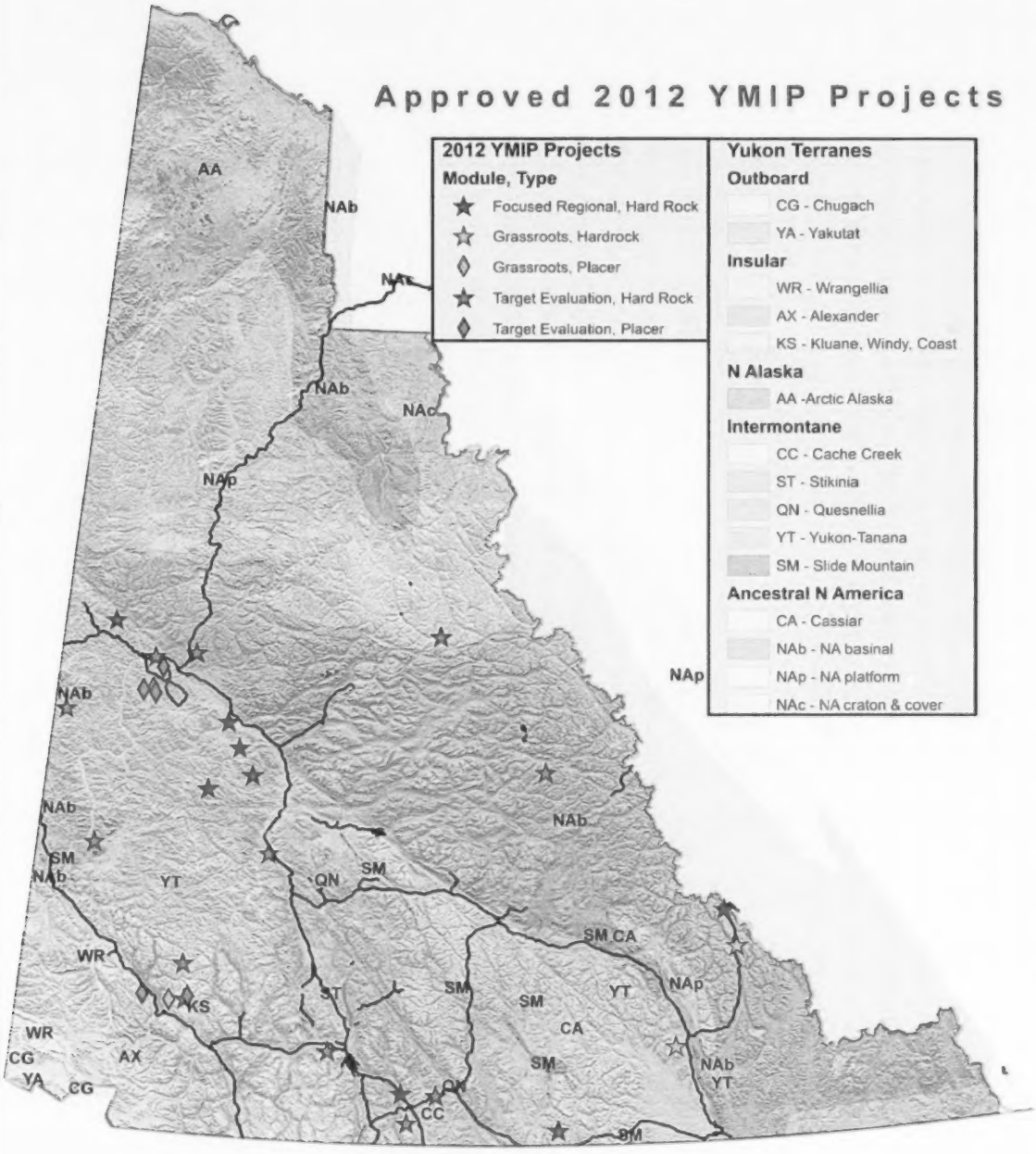

Figure 2. *Yukon map of approved 2012 YMIP projects.*

Yukon Oil and Gas Overview 2012

B. Adilman[1]
Oil and Gas Resources

Adilman, B., 2012. Yukon Oil and Gas Overview 2012. *In:* Yukon Exploration and Geology Overview 2012, K.E. MacFarlane and M.G. Nordling (eds.), Yukon Geological Survey, p. 77-82.

INTRODUCTION

Yukon's Oil and Gas Resources (OGR) branch is part of Yukon government's Department of Energy, Mines and Resources (EMR). OGR's mandate is to manage Yukon's oil and gas resources and to encourage and regulate oil and gas activity in the territory.

This paper provides a summary of oil and gas-related activities over the past year, including an update of 2012 exploration and production. Highlights of 2012 include the start-up of a new drilling program in Eagle Plain, the completion of legislative changes, and a strong public response to an expression of interest in oil and gas exploration in south-central Yukon.

OIL AND GAS EXPLORATION AND PRODUCTION HIGHLIGHTS

EAGLE PLAIN EXPLORATION

In 2007, Northern Cross Yukon (NCY) acquired 15 exploration permits covering a total area of 1.3 million acres in the eastern part of Eagle Plain basin in north Yukon (Fig. 1). In 2011, they signed a partnership agreement with China National Offshore Oil Corporation that provided the resources to undertake drilling operations on their permits in the third quarter of 2012.

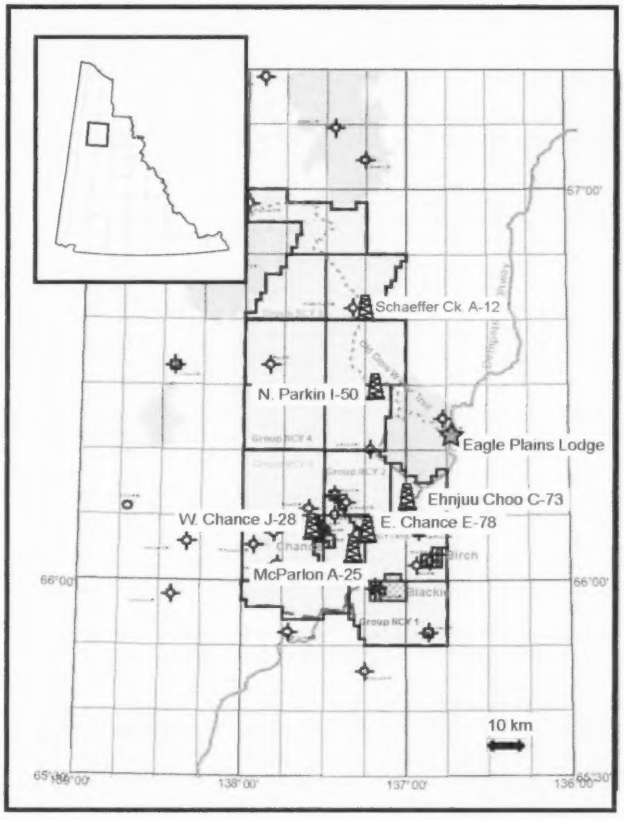

Figure 1. *Map showing the permits held by Northern Cross Yukon (yellow shaded area) and the locations of the six well sites identified in the company's 2012-13 drill plan. Green areas indicate First Nation lands. Map modified from Northern Cross (Yukon) Ltd.'s 2012 Geoscience Forum presentation.*

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An overview of the company's exploration program was presented in November at the Yukon Geoscience Forum and is briefly summarized here. Drilling on NCY's permits was initiated in the fall of 2012, with plans to complete six wells by spring 2013. Exploration is focused primarily on conventional oil and gas reservoirs in Carboniferous lowstand fan sands and Devonian hydrothermal dolomites. The program will also assess the shale gas potential of several shale horizons that will be intersected by the wells.

Four of the wells (McParlon A-25, Ehnjuu Choo C-73, W. Chance J-28, and E. Chance E-78) are located in the southern part of the permit area and are relatively close to the Dempster Highway (Fig. 1). With the exception of the E. Chance well, the southern wells will be drilled through the mid-Devonian Ogilvie Formation. The E. Chance well is a shallower well that will intersect two younger (Permian and late Carboniferous) plays. The remaining two wells (N. Parkin A-50 and Schaeffer Ck. A-12) are located in the northern part of the permit area.

The first phase of drilling is underway in the southern area. The McParlon A-25 well has been completed and cased, and the E. Chance well has been cased and suspended with an intermediate casing set. Construction of winter roads to access the two northern well sites has been delayed due to lack of snow; this delay will likely impact the company's drilling schedule.

While NCY has been advancing its exploration program in the Eagle Plain basin, NCY, in conjunction with OGR and the Vuntut Gwich'in First Nation, has implemented a Benefits Agreement for training, employment and business opportunities.

LIARD BASIN NATURAL GAS PRODUCTION

In southeastern Yukon, the Kotaneelee Field in Liard Basin continued to produce natural gas. The only producing well (L-38) yielded 30 131 000 m^3 of gas between January and October 2012 (Fig. 2). The well is in the late stages of its production life. Since August, gas production has dropped off steeply; at the same time, reservoir pressure is declining and water cuts are increasing.

Despite declining production, the Kotaneelee field represents an opportunity. In July, EFLO Energy Yukon Ltd. (EFLO) acquired Devon Canada's interest in the project and in October they purchased Nahanni Energy Inc.'s interest (http://www.efloenergy.com/index.php?&content_id=9). EFLO presently holds the controlling interest in the field and is continuing to pursue additional interests.

ENERGY FOR YUKON

Over the past few years, Yukon Energy Corporation (YEC) has been exploring options for reducing reliance on diesel-generated power to supplement its hydro grid. The corporation is seeking alternatives that are cost-effective, reduce greenhouse gas emissions, and are achievable in the short term. Yukon's power requirements, while difficult to accurately predict, are expected to increase significantly over the next decade as the territory grows. Based on different mine development scenarios, power needs could increase by as much as tenfold over the next decade (Government of Yukon, 2010). Following several studies and charettes, YEC has identified natural gas-generated power as the best short-term option for meeting this need (http://www.yukonenergy.ca/energy/projects/lng/). They are examining options for importing liquefied natural gas (LNG) into the territory and have engaged OGR in discussions around regulation of LNG facilities.

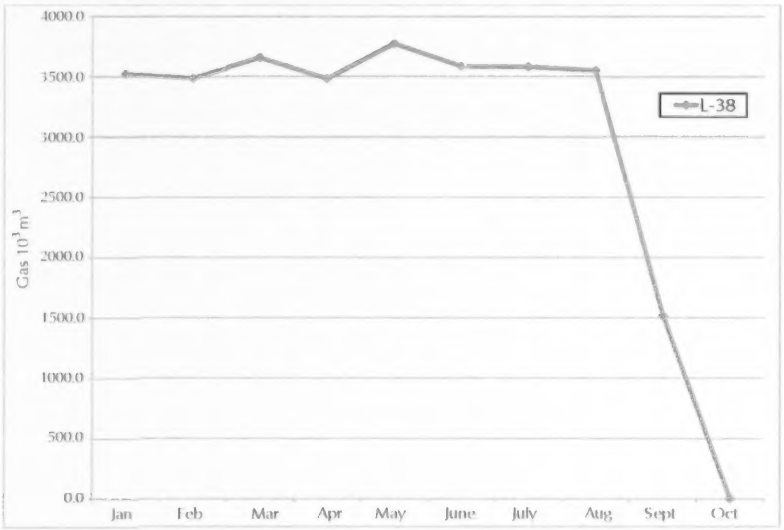


Figure 2. *Natural gas production from well L-38 in the Kotaneelee field, southeast Yukon.*

"Energy Strategy for Yukon" is an initiative that was started by OGR, and has attracted the interest of several First Nation governments and industry. Driven by Yukon's projected energy needs and informed by Yukon government's Energy Strategy (http://www.energy.gov.yk.ca/energy_strategy.html) and Climate Change Action Plan (http://www.env.gov.yk.ca/publications-maps/plansreports.php#climate), the initiative proposes local production of Yukon gas to generate power. Use of local gas could eliminate the need to transport LNG into the territory, and create new economic opportunities for Yukon.

Given YEC's interest in replacing diesel generators with natural gas-burning generators, the development of Yukon's natural gas resources has become a priority action of "Energy Strategy for Yukon".

OIL AND GAS RIGHTS DISPOSITION

Yukon's eight onshore sedimentary basins contain an estimated 17 trillion cubic feet (Tcf) (480 billion m^3) of natural gas and 770 million barrels (120 million m^3) of oil (Government of Yukon, 2011; Fig. 3). Its offshore resources include an additional estimated 40 Tcf (1.5 trillion m^3) of natural gas and 4.5 billion barrels (720 billion m^3) of oil (Government of Yukon, 2011). Under Yukon's *Oil and Gas Act* and *Oil and Gas Disposition Regulations*, the rights to explore for and develop these resources are obtained through a competitive disposition process. OGR conducts two disposition processes annually, comprising four steps. The first step, the "Request for Postings" (RFP), gives industry an opportunity to identify areas in which they are interested in exploring for oil and gas. Following the receipt of Requests for Postings, a RFP Review is undertaken during which the public, First Nations, and government agencies can submit representations related to environmental, soci-economic, and access concerns regarding the areas identified in the RFP. The submissions are reviewed by EMR, and a decision regarding which areas will be opened for exploration is made by the Minister. This is followed by a "Call for Bids", in which industry is invited to submit bids on those areas that have been approved following the RFP Review. Oil and gas permits are then issued to the successful bidder(s).

Upon completion of the process, successful bidders are required to submit a work deposit equal to 25% of their work commitment bid. A minimum work commitment bid under the disposition process is $400 000. The funds are reimbursed as work, equivalent to the deposit amount, is completed.

The initial term of an oil and gas permit is six years. Before commencing their exploration program, a permit holder is required to obtain all regulatory approvals and undergo environmental screening through the Yukon Environmental and Socio-Economic Assessment Board (YESAB). They are also expected to adhere to best management practices as outlined by OGR. At the end of six years, the permit may be extended a further four years if a qualifying well is drilled during the initial term.

2012 WHITEHORSE TROUGH REQUEST FOR POSTINGS

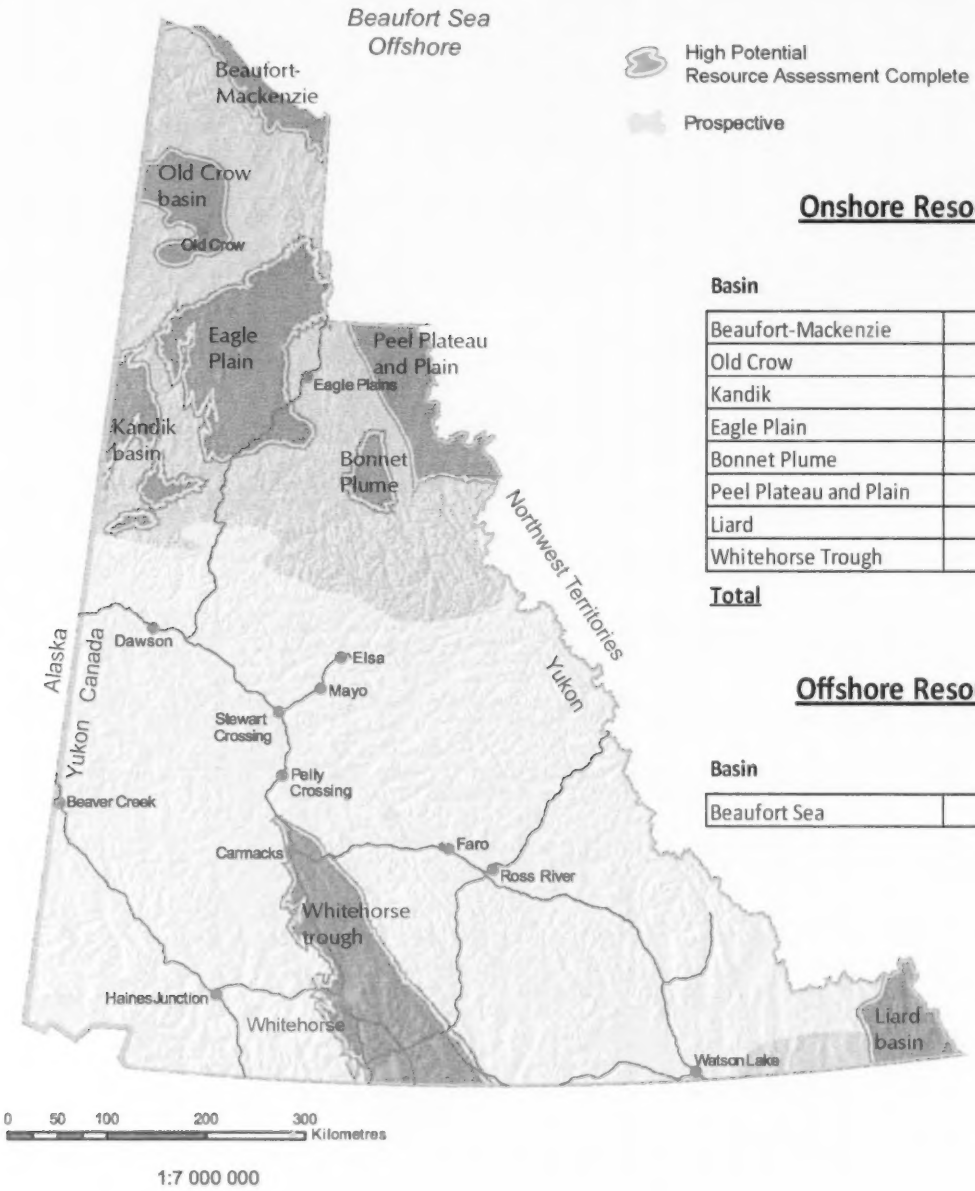
In January 2012, Yukon received 12 Requests for Postings in the Whitehorse Trough. The RFP represented the first-ever expression of interest in acquiring oil and gas exploration rights in this frontier basin. During February and March, EMR staff conducted a review of the proposed locations with First Nations, government agencies and the public. Significant opposition to oil and gas development was expressed at a number of public meetings. Concerns focused on potential environmental impacts were heard; in particular, apprehensions about hydraulic fracturing. In early April, a petition opposing development of hydrocarbons in the Whitehorse Trough was tabled in the Yukon Legislature, and on April 12 the Minister announced that there would be no Call for Bids issued as a result of public concerns.

Subsequent to this decision, EMR has been examining ways to address the public concerns heard during the Whitehorse trough RFP. In November, Minister Cathers tabled a motion in the Legislature, a portion of which commits to undertaking an informed public dialogue on all aspects of oil and gas development. This public dialogue is expected to begin in early 2013.

LEGISLATIVE AMENDMENTS

In 1998, the responsibility for managing Yukon's oil and gas resources devolved from the federal to the territorial government and Yukon's *Oil and Gas Act* and *Oil and Gas Disposition Regulations* were enacted. Since that time, industry practices have undergone some changes, including enhanced methods for extracting unconventional oil and gas, improvements in exploration technologies, and advancements in the transportation and storage of

Yukon Oil & Gas Basins



Onshore Resource Potential

Basin	Gas (Tcf)	Oil (MMbbls)
Beaufort-Mackenzie	1.01	217
Old Crow	1.15	0
Kandik	0.65	99
Eagle Plain	6.06	437
Bonnet Plume	0.80	0
Peel Plateau and Plain	2.92	0
Liard	4.11	0
Whitehorse Trough	0.38	18
Total	**17.08**	**770**

Offshore Resource Potential

Basin	Gas (Tcf)	Oil (MMbbls)
Beaufort Sea	40	4500

Figure 3. *Map of Yukon's sedimentary basins; resource estimates indicated.*

oil and gas. Over the same period, comprehensive land claim agreements were completed with several Yukon First Nations and a number of court decisions have provided more clarity regarding requirements for First Nation consultations and accommodations.

In order to adapt to these changes and ensure Yukon remains attractive to oil and gas exploration investment, EMR introduced amendments to the Yukon *Oil and Gas Act* in the fall 2012 sitting of the Yukon Legislative Assembly. The amendments align the Act with legislation in other Canadian jurisdictions, address a number of administrative updates, bring the Act into line with the common law on consultation with First Nations, and extend the Act to liquefied natural gas facilities. More details on the amendments are presented on OGR's website (http://www.emr.gov.yk.ca/oilandgas/og_consultation.html). They were approved by the Legislative Assembly in early December.

In addition to legislative amendments, OGR is updating and improving a number of regulations (the Royalty Regulations, Drilling and Production Regulations, Disposition Regulations, Licence Administration Regulations, and Geoscience Exploration Regulations) and developing new Pipeline Regulations and Gas Processing Plant Regulations. The Department will continue to improve the legislative and regulatory framework to ensure Yukon's oil and gas management regime protects Yukon's environment, provides fiscal benefits to residents, and addresses evolving best practices within the oil and gas sector.

PIPELINES

While the Mackenzie Gas Project and the Alaska Highway Pipeline Project both offer enormous economic opportunities for the north, neither project is a certainty. In late March, the North Slope's major players and TransCanada PipeLines announced that they were pursuing the option of shipping LNG from a port in south-central Alaska. TransCanada PipeLines has closed its Whitehorse office, signaling that the Alaska Highway route is not a current priority. Similarly, following a protracted review process and a drop in natural gas prices, partners in the Mackenzie Gas Project have suspended funding. The National Energy Board has given the partners until the end of 2013 to make a decision on whether to proceed with the project.

While neither pipeline project has been formally cancelled, industry is not presently working on these projects in Yukon. The work Yukon Government has done contributing to the regulatory process and identifying opportunities and benefits for Yukon puts the territory in a good position to re-engage if the proponents should announce renewed interest in building one or both pipelines.

OFFSHORE

Although the federal government transferred responsibility for onshore oil and gas to the Government of Yukon in 1998, it continues to maintain responsibility for oil and gas management and development in the Beaufort Sea (Fig. 3). Nevertheless, Yukon retains an interest in Beaufort Sea exploration and development. The 1993 Canada-Yukon Oil and Gas Accord commits the two levels of government to negotiate a shared offshore oil and gas management regime and revenue sharing arrangement in the Beaufort Sea. To date, no federal mandate for negotiations has been provided, due mainly to limited progress on devolution in the Northwest Territories. In the interim, a 2008 Memorandum of Understanding between EMR and Aboriginal Affairs and Northern Development Canada provides the opportunity for Yukon to provide input into industry-produced benefits plans, the 'call for nominations' process for new exploration rights, and offshore policy and planning.

Industry interest in Beaufort Sea exploration and development remains strong. Since 2007, approximately $2 billion in work commitments have been made by Imperial, BP, Chevron, ConocoPhillips, and others. In September 2012, Franklin Petroleum Ltd. successfully bid on six offshore parcels (totalling more than $7.5 million in work commitments), GX Technology continued to make significant investments in new 2-D and 3-D seismic surveys over the summer and fall, and Chevron completed a 3-D seismic program on recently-acquired permits off Yukon's coast. These investments in exploration activity have potential to provide significant benefits for Yukon.

SUMMARY

OGR recognizes that concerns over oil and gas developments, much of it fuelled by conflicting information on hydraulic fracturing, are affecting public trust and impacting industry's social licence in Yukon. In the short term, the department is supporting exploration to

help assess Yukon's energy inventory, with the objective of energy self-sufficiency in mind.

While the past year presented a number of challenges, it also saw significant achievements related to oil and gas opportunities in the territory. Interest in Yukon's offshore continues to be strong, drilling is underway in Eagle Plain and a company new to Yukon is investing in Kotaneelee assets and has plans to explore there. The alignment of these interests with Yukon Energy Corporation's focus on natural gas-powered electrical generation presents exciting opportunities.

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Robert E. Leckie Awards

Judy St. Amand[1]
Mining Lands, Energy Mines and Resources

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EXCELLENCE IN EVIRONMENTAL STEWARDSHIP - QUARTZ

PITCHBLACK RESOURCES LTD.

Pitchblack Resources, whose claims are in the Wernecke Mountains, undertook an aggressive and comprehensive two year reclamation plan. This included the decommissioning and removal of three camps, Aussie Lake, Igor, and Lumina (Fig. 1), along with clean-up at Copper Point, Hustle and Delores airstrips. 800-900 fuel drums, buckets of drill fluids, propane tanks, appliances, helicopter and drill parts, and miscellaneous equipment were removed and sold, recycled or disposed of. Contaminated soils at the airstrips, which were obviously the result of multiple users, were removed for treatment. Exceptional work and a benefit to all sectors of Yukon!

Figure 1. *Reclaimed Lumina camp. Photo - courtesy of Pitchblack Resources Ltd.*

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EXCELLENCE IN ENVIRONMENTAL STEWARDSHIP - PLACER

BARDUSAN PLACERS LTD.

This father/son operation abuts Alexco's Bellekeno property on Lightning Creek (Fig. 2) in the Mayo Mining District and has been in operation since 1967. The geographical closeness of the two operations has prompted a coordination of the quartz and placer mining activities to avoid operational conflicts and encourage a symbiotic working relationship. This translates into minimized impact on the environment.

The Barchens, through systematic mining practices and long term planning, have gradually worked upstream while utilizing a unique buried drain to transport water to their settling ponds below. This innovative method lends itself to timely and systematic reclamation of the previous year's mine cut with the stripping/waste material from current mining.

Use of slide rock and coarse armoring, exposed during mining activities, ensures long term stream stability and separation of the ponds from the reconstructed creek channel. The Barchens are true stewards of the environment!

Figure 2. *Natural re-vegetation in autumn at Lightning Creek, Mayo mining district, Yukon. Photo – courtesy of Bill Leary, CS&I, Energy, Mines and Resources.*

RESPONSIBLE AND INNOVATIVE MINING PRACTICES

YUKON ZINC CORPORATION

Yukon Zinc Corporation operates a polymetal mine just off the Robert Campbell Highway, midway between Ross River and Watson Lake. They have the honour of being the first recipients of the *Responsible and Innovative Practices in Mining* award.

Successes this year include a functioning biochemical water treatment system, the raising of the dam by 7 m (Fig. 3), and enlargement of a lined tailings facility to accommodate it, all done with minimal impact.

The pre-treatment steps and inventive metal recovery methods, employed during mill processing, enable the recycling of contaminated water from the tailings pond. This, along with the use of various storage facilities and progressive water treatment, allows Yukon Zinc to conserve well over 100 000 m^3 of fresh water every month. Six Yukon First Nation members received certificates from the on-site heavy equipment operation training at a graduation ceremony attended by their families and other guests. It is thought to be the first remote site training of this kind. In some cases, this training is life changing, as it provides trained staff members a new vocation, opening doors to the world.

Other initiatives, such as a system of lined ditches, a fully lined waste rock facility, a waste heat recovery system, an anaerobic bacterial sewage treatment plant, the passive water treatment system, and progressive reclamation contribute to lessening the footprint of the project. The ongoing relationship with Ross River Dena Council and Liard First Nations, through employment, training, and traditional ceremonies on site, show a high commitment to social responsibility. Yukon Zinc is excelling entirely in the "scope of the award" for Excellence in Environmental Stewardship, Outstanding Social Responsibility, and Leadership and Innovation in overall processes.

Figure 3. *Equipment placing and compacting material on the tailings dam lift. Photo - courtesy of Glenn Ford, Water Resources.*

2012 List of Publications and Maps

2012 YGS PUBLICATIONS

YGS released 34 publications in 2012: 2 Annual Reports, 2 Miscellaneous Reports, and 30 Open Files.

ANNUAL REPORTS

Yukon Exploration and Geology Overview 2011. K.E. MacFarlane (ed.), 2012. Yukon Geological Survey, 98 p.

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